Dental Digest

UNIVERSITY OF MICHIGAN
FEB 21 1955
DENTISTRY LIBRARY

February 1955

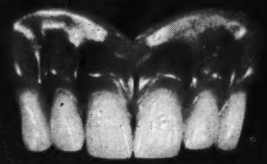
IN THIS ISSUE

Plastic Correction of Asymmetrical Lip of Traumatic Origin 54
Marble Bone Disease: Report of a Case 58
Accurate Duplication of the Trial Denture 62
Enlargement of the Parotid Glands 67
Approach to Mouth Reconstruction—Part Two ..68
Atypical Facial Pain 73
Calcium and Phosphorus of Blood 74
Effect of Topically Applied Stannous Chlorofluoride on the Dental Caries Experience in Children 76
Clinical and Laboratory Suggestions 78
Medicine and the Biologic Sciences 81
Oral Prosthesis as an Important Health Service 84

(A complete table of contents appears on page 55)

Cover illustration—Myerson article page 62

...the "flexibility factor" in the selection and arrangement of Five Phase Anteriors.



FREE—This helpful literature is available upon request:

1. Illustrated Mold Chart
2. 60 Personalized Five-Phase Anterior Denture Arrangements
3. 32-page Book: Varied Labial Surfaces and Their Relation To Scientific Tooth Selection

FIVE-PHASE ANTERIORS ARE AVAILABLE IN YOUR CHOICE OF

VERI-CHROME PORCELAIN

AND

VERIDENT PLASTIC

The unique "flexibility factor" of Five Phase Anteriors simplifies the achievement of "living" beauty in full and partial dentures.

The understandable mold identification of Five Phase Anteriors arranged in the co-ordinate size mold system simplifies your selection of a standard set to the dimensions and color you require—*in a choice of dominantly curved or dominantly flat labial characteristics.* This method of selection will meet requirements of the majority of full and partial dentures.

When you find it desirable to deviate from "standard" sets and standard colors, the arrangement of the Five Phase Anteriors in the co-ordinate size mold system with their co-acting proximals simplifies transposition of Centrals, Laterals and Cuspids from different sets. Furthermore the controlled brilliance of Veri-Chrome tooth colors permits the use of more than one color in a single denture for natural color effects.

You can also select Five Phase Anteriors *in your choice of* the famous time-tested Veri-Chrome Porcelain or Verident Plastic—the plastic of unchallenged superiority.

Once you have experienced this "peak of flexibility" in tooth selection and arrangement with Five Phase Anteriors, you will quickly join the many thousands of dentists who have happily discovered Five Phase Anteriors.

FIVE-PHASE ANTERIORS

MADE IN Veri-chrome COLORS OF CONTROLLED BRILLIANCE

UNIVERSAL DENTAL COMPANY · 48TH AT BROWN STREET · PHILADELPHIA 39, PA.

UNIVERSAL DENTAL COMPANY · 48TH AT BROWN STREET · PHILADELPHIA 39, PA.

Vol. 61, No. 2

Dental Digest

Registered in U.S. Patent Office

FEBRUARY 1955

Plastic Correction of Asymmetrical Lip of Traumatic Origin
Bruce Douglas, D.D.S., and Harold Kresberg, D.D.S. 54

Infectious Mononucleosis (An Abstract)
Marble Bone Disease: Report of a Case
Robert Borkenhagen, D.D.S., M.D., and Robert Atterbury, D.D.S. 58

Accurate Duplication of the Trial Denture
Simon Myerson, D.M.D. 62

Enlargement of the Parotid Glands (An Abstract) 67

Approach to Mouth Reconstruction—Part Two
Murray N. Rubinstein, D.D.S. 68

Atypical Facial Pain (An Abstract)
A.M.G. Campbell, M.A., D.M. Oxfd., F.R.C.P., and June K. Lloyd, M.B. Brist., M.R.C.P., Bristol, England 73

Calcium and Phosphorus of Blood (An Abstract) 74

Effect of Topically Applied Stannous Chlorofluoride on the Dental Caries Experience in Children (An Abstract)
Charles L. Howell, D.D.S., M.P.H., and Joseph C. Muhler, D.D.S., PhD. 76

Clinical and Laboratory Suggestions
1. Stabilizing a Chip Blower. 2. Matrix Band for Deciduous Molars. 3. To Keep Foot Control from Sliding. 4. Cleaning a Saliva Ejector. 5. Soldering a Hole in a Gold Crown. 6. Gingival Amalgam Repair.

The Editor's Page ..... 80 Contra-Angles 88

Medicine and the Biologic Sciences 81

Oral Prosthesis as an Important Health Service (An Abstract)
Clyde H. Schuyler, D.D.S. 84

EDWARD J. RYAN, B.S., D.D.S., Editor
WANDA T. PICKARD, B.A., Assistant Editor
708 Church Street, Evanston, Illinois

Copyright, 1955, by Dental Digest, Inc. See page 50 for subscription data, etc.
The magazine is mailed on the fifteenth of the month of issue.

About Our CONTRIBUTORS

Bruce L. Douglas, A.B. (Princeton University, 1946), D.D.S. (New York University College of Dentistry, 1948) is associate editor of the *New York State Dental Journal* and has published more than 25 articles and editorials in medical and dental journals, and is at present a candidate for the degree of Ph.D. in education at Columbia University Teachers' College. Doctor Douglas' co-author, Harold Kresberg, A.B. (Harvard College), D.D.S. (New York University College of Dentistry, 1947) is a member of the oral surgery staff of Columbia University School of Dental and Oral Surgery, and of Mary Immaculate Hospital, Jamaica, New York. Their article is Plastic Correction of Asymmetrical Lip of Traumatic Origin.

Robert Borkenhagen, D.D.S. (University of Illinois, College of Dentistry, 1944), M.D. (Chicago Medical School, 1951) limits his practice to oral surgery. He is a member of the staff of Research and Educational Hospital of the University of Illinois, and an associate member of the medical staff of St. Francis Hospital, Blue Island, Illinois. For his first presentation in Digest, Marble Bone Disease, Doctor Borkenhagen's co-author is a former contributor, Robert Atterbury, B.S., D.D.S. (University of Illinois, College of Dentistry, 1942). Doctor Atterbury is associated with the Research and Educational Hospital of the University of Illinois, is a member of the Chicago Society of Oral Surgeons, and is consulting oral surgeon at Westlake Hospital.

Simon Myerson, D.M.D. (Harvard University, Dental School, 1908) who is well known for his extensive research in the field of prosthetics, and for the original contributions he has made, describes in his present article, Accurate Duplication of the Trial Denture, a material that has been used successfully during processing of trial dentures to avoid changes in vertical dimension.

Murray N. Rubinstein, D.D.S. (New York University, College of Dentistry, 1924) is a general practitioner who emphasizes restorative dentistry in his practice. Doctor Rubinstein, who is known to Digest readers for his practical articles on this subject, presents the second installment of his serial article, Approach to Mouth Reconstruction.

PLASTIC CORRECTION

of Asymmetrical Lip

of Traumatic Origin

BRUCE DOUGLAS, D.D.S., and HAROLD KRESBERG, D.D.S.,
Rego Park, New York

DIGEST

This article describes in detail the nine steps that were completed in a surgical procedure to reduce a traumatic scar formation of the lip.

Case History

The patient was a twenty-four-year-old Negro woman who had previously sustained a bilateral fracture of the mandible which had been wired successfully for a period of six weeks. The patient complained of the effect that the original accident had had on her appearance. She had a noticeable scar on her forehead and an unsightly mass of granulation tissue with overlying scar formation on the left lateral aspect of her upper lip.

General Health—The patient was in good health. Preoperative blood count and urinalysis were within normal limits.

Premedication—The patient was prophylactically premedicated with 300,000 units of penicillin.

Operative Procedure

The following steps comprised the operative procedure:

1. The entire lip was cleansed with tincture of zephiran.

2. The patient was instructed to bite on several thicknesses of 4 by 4-inch gauze, thereby obliterating the labial vestibule.

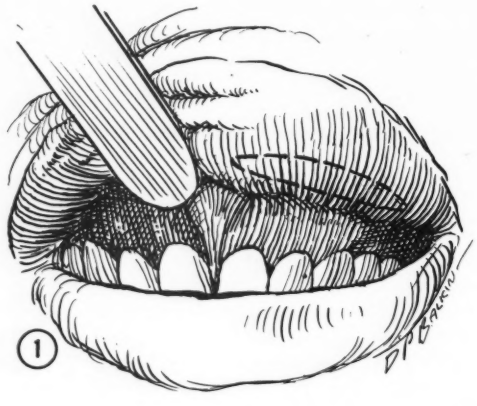
3. The upper lip was painted with tincture of iodine and then with 70 per cent alcohol.

4. The lip was exposed through carefully placed drapes and anesthetized by infiltration anesthesia. Two cubic centimeters of procaine were also introduced into the left infraorbital foramen area via the intraoral route.

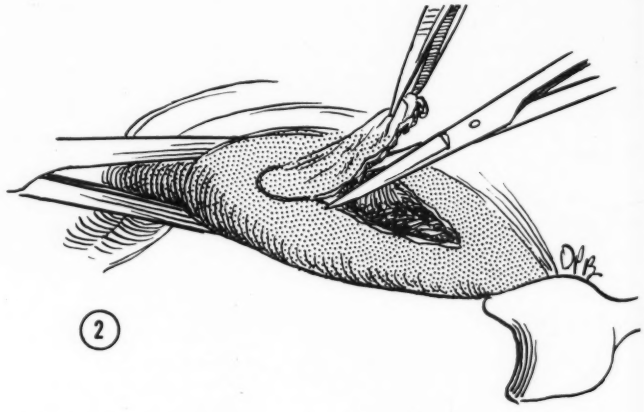
5. The lip was held taut and an elliptical line of incision was outlined with a sharp applicator stick dipped in methylene blue (Fig. 1).

6. A No. 10 scalpel blade was passed along the entire length of the previously outlined incision line, penetrating through the superficial layer of skin.

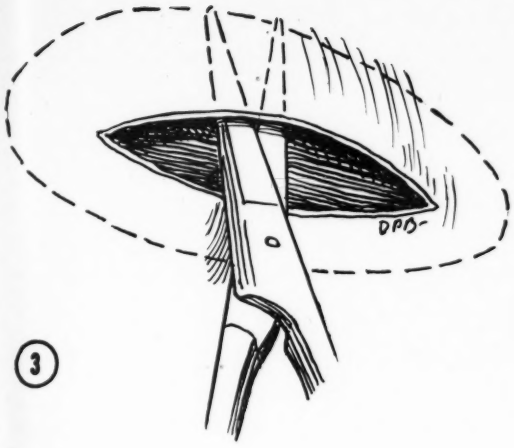
7. One end of the proposed area of excision was held in an ophthalmic mouse tooth forceps and the dissection was begun with small sharp scissors (Fig. 2).



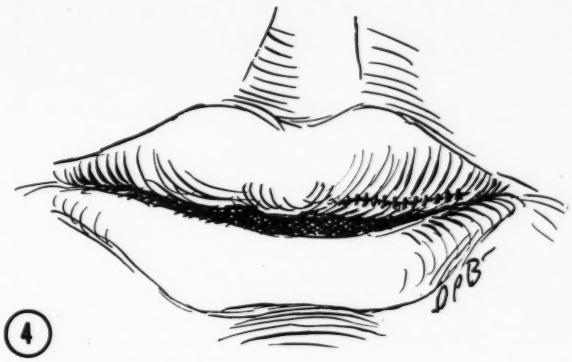
1. ***Shows the outline of the incision to be made to reduce a keloid-like scar in the upper lip.***



2. ***Dissection of scar tissue within the outlined area.***



3. *Blunt dissection to free the tissue lying outside the outlined area.*



4. *Appearance of the tissue after closure with 12 interrupted 000 silk sutures.*

8. Using alternate sharp and blunt dissection, the entire outlined area was freed with the overlying scar tissue, some areolar and fatty tissue, and embedded labial glands (Fig. 3).

9. The incised edges were extensively undermined to avoid too much pull on the sutures, the tissues coapted, and closed with 12 interrupted triple O silk sutures (Fig. 4). The sutures were removed on the fourth postoperative day.

Conclusion

The patient was seen two weeks after surgery. Healing was considered to be satisfactory at that time.

93-08 *Queens Boulevard.*

5. *View of the patient before the operation.*

6. *Postoperative appearance.*

Infectious Mononucleosis

A PETECHIAL eruption on the soft palate is described as an early manifestation of infectious mononucleosis. The purpuric spots vary in number and slightly in size. They are localized at the junction of soft and hard palate in a crescent-like arrangement, appear between the third and the seventh days of the illness, and fade after three to four further days.

From *Lancet No.* **6847**:1055 (Nov. 20) 1954.

MARBLE BONE *Disease:*

Report of a Case

ROBERT BORKENHAGEN, D.D.S., M.D., and ROBERT ATTERBURY, D.D.S., Chicago

DIGEST

Osteopetrosis generalisata (marble bone disease, Albers-Schonberg's disease) in a nineteen-year-old woman is reported in this article. The disease is rare and the patient is seldom aware of the disorder. Certain factors, however, make diagnosis possible: (1) a characteristic "square jaw" in the subject, (2) an increased density of the alveolar bone as revealed in dental roentgenograms (a radiographic bone survey shows generalized replacement of the marrow by calcium substance), (3) a varying degree of anemia, usually hypochromic and probably due to obliteration of the bone-forming marrow, and (4) cranial nerve palsies and a tendency toward fractures. In the present case there was a notable torus palatinus, a condition not previously reported.

General Symptoms

The need for consideration of this systemic disease in a dental differential diagnosis is emphasized. The following conditions may be present:

1. A "square jaw" appearance is predominant and readily seen on inspection. Usually the patient is unaware of the disorder.

2. Dental roentgenograms show an extreme denseness of bone surrounding the teeth.

Dental Observation Important—Bone of the maxilla and mandible alveolar process is probably the most frequently radiographed of all osseous structures in the human being; the early finding, therefore, of osteopetrosis in the child or adult might well derive from careful dental clinical and radiographic observation.

Complications—The fact that the condition is rare is reassuring, but the clinical problems encountered make it important:

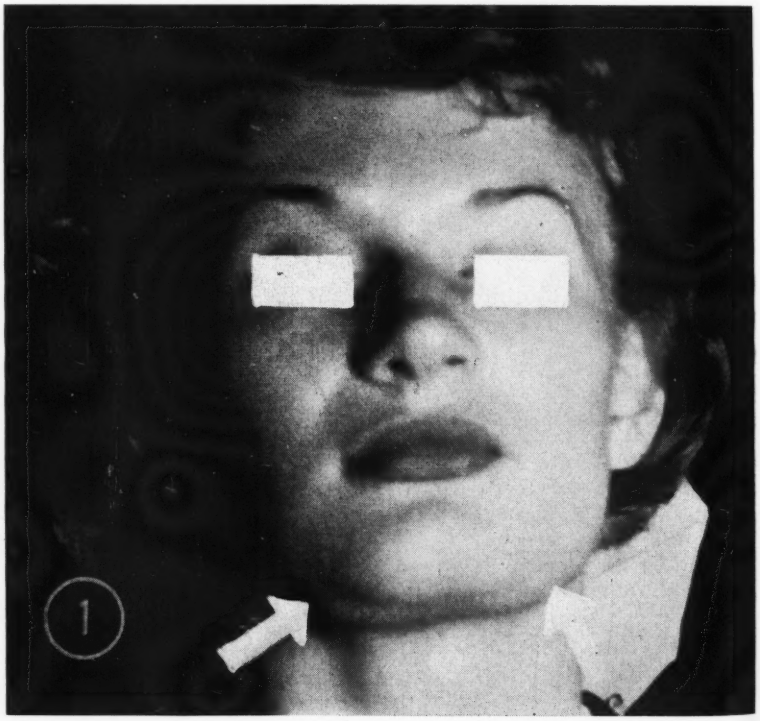
1. Osteomyelitis is a common complication in patients with osteopetrosis, and "five deaths after dental infection and two cases of complete sequestration of the mandible have occurred."[1]

2. The anemia accompanying the disease and frequently responsible for its sequelae is another important factor to be considered where oral surgical procedures are contemplated.

Report of a Case

A nineteen-year-old college student was referred for evaluation because of a thickening of the lower jaw. All

[1]Winter, Gordon R.: Albers-Schonberg's Disease, Am. J. Orthodontics and Oral Surgery, **31**:637-648 (Feb.) 1945.



1 *and* **2.** *Note the "square jaw" of a patient with marble bone disease. Arrows point to the bony prominence of the lower jaw, giving the appearance of a "double chin."*

dental roentgenograms taken by the referring oral surgeon seemed to be underexposed. He reasoned that the denseness of the bone might be related to the numerous carious and non-vital teeth, since the dental blood supply may have been impaired.

Physical Examination — The patient had not been ill, and was unaware of disturbance except for occasional fatigue. Physical examination revealed the following:

1. A well-developed woman five feet nine inches tall, whose face showed (Figs. 1 and 2) a prominence of the lower jaw, with a bilateral excess along the lower border of the mandible. This latter resembled a "double chin," but the enlargement was bony rather than fatty. The face looked square.

2. The zygomas were prominent, but not out of proportion for a woman of her stature.

3. The palpebral conjunctivae and oral mucous membranes were pink.

4. Occlusion was normal, and the periodontal structures were intact.

5. Several teeth were carious beyond repair; some had root canal fillings, and others were missing.

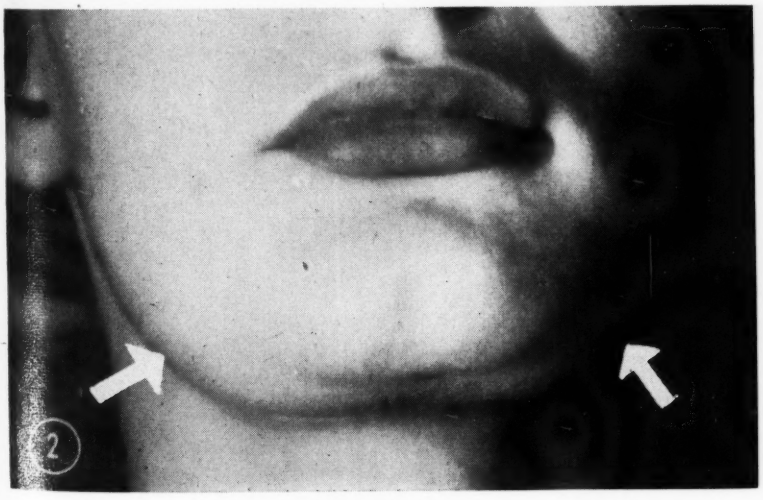
6. A torus palatinus, measuring 1 by 1½ by 3 centimeters was noted (Fig. 3).

7. No torus mandibularis was found, but there was a generalized thickening of the mandible on palpation lingually.

8. Liver and spleen were not palpable, and blood pressure was 118/78.

9. Laboratory findings were the following:

Red Blood cells	3.4 million	(normal 4.5-5.5 million)
White blood cells	8000	(normal 5 to 9000 / cubic millimeters)
Calcium (serum)	10.2 milligrams	(normal 9.5 to 11.5 milligrams/100 cubic centimeters)
Hemoglobin	7.35 grams	(normal 14-15 grams/100 cubic centimeters)
Phosphorus	2.2 milligrams	(normal 2.5-3.5 milligrams/ centimeters)
Alkaline phosphatase	1.4 units	(normal 2-4 units/100 cubic centimeters)
Serology	negative	



Roentgenographic Examination—Roentgenograms of the entire skeleton were made. A filling in of the marrow in the skull, in the long bones, pelvis, hands and feets was noted. The mandible was thickened, and among the most dense of all bone surveyed (Fig. 4).

Dental Radiographs—Even at double exposure time, dental radiographs did not visualize the apexes of the teeth in several regions because of the denseness of the bone (Figs. 5 and 6.) There was a striking loss of trabeculation in the alveolar bone.

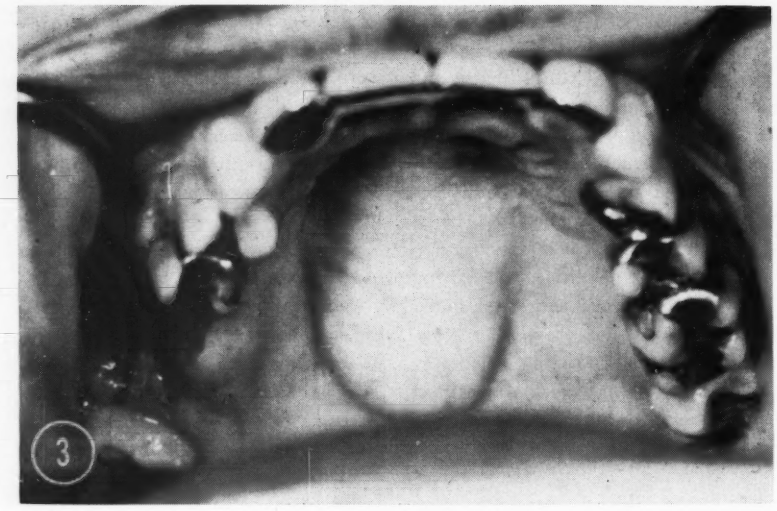
Osteosclerosis in Bone Revealed—To facilitate study of the oral situation a carious lower right first molar was removed, along with a 1-centimeter square of cortical buccal plate. An upper right first and second molar were also removed, with cortical bone and alveolar crest. The pathologic findings in the enamel and dentin were non-revealing. The bone showed osteosclerosis, consistent with the roentgenographic findings of osteopetrosis.

Factors in Surgery—It was noted in the extraction that the bone was extremely difficult to section, and did not have the chalky consistency sometimes present in this disorder. The wounds were well sutured, and intramuscular antibiotic was used postoperatively. Healing was without event.

Differential Diagnosis

The diagnosis is relatively easy once a survey of the entire skeleton is made. Paget's disease is to be differentiated from osteopetrosis. In Paget's the disorder occurs in middle life or older, there is a high alkaline phosphatase, radiographic thickening of the cortical plate, but presence of a medullary cavity.

Simulated Conditions — (1) Myelosclerotic changes within bone occur with anemia of carcinomatosis, and differentiation may be difficult. (2) In leukemia bone changes occur, but usually the blood findings are diagnostic. (3) Phosphorus, lead, fluorine, and strontium poisoning may simulate osteopetrosis; chemical testing is needed to differentiate these.



3. ***A large torus palatinus is photographed. Note the extensive bridge reconstruction and the numerous restorations in a patient with osteopetrosis. The right molar region shows healing alveolar bone where tooth and bone were removed for microscopic study.***

Other Differentiations—(1) Acromegaly and giantism lead to an increase in skeletal growth, but there is not the replacement of bone as found in osteopetrosis. (2) Leontiasis ossea is a rare bone disturbance involving the maxilla and mandible, and the features become lion-like. (3) Congenital rickets is said to co-exist in the juvenile types, and the differentiation, which is difficult, is by chemical analyses of the urine phosphorus. (4) Hyperparathyroidism must be considered.

Discussion

In 1947 Pines and Lederer [2] reported on 148 cases collected from the medical literature. This is the largest number to be reviewed to date. The case originally described by the radiologist Heinrich Albers-Schonberg in 1904 had a positive serology, which may have been an etiologic factor. In 1945 Winter described the oral manifestations of the disease. In 1954 Plotz and Chakales[3] reported their findings on a forty-two-year old woman.

Etiology Not Determined—Two views are expressed: (1) It is suggested that the disease is a developmental anomaly of the primordial mesenchymal cell. (2) The other suggestion is that the condition is a state of chronic hyperparathyroidism.[4] Genetic factors of consanguinity have been studied in this disease.

Distribution and Types—The incidence of osteopetrosis generalisata has ranged from in utero to 75 years of age, and the sex distribution is about equal. Two types occur: (1) a malignant form occurring in infants and leading to early death, and (2) a benign form, which may be asymptomatic for several years. The onset of the disease in the older age groups is difficult to ascertain. Bone fractures, some of which are known to the patient, occur often.

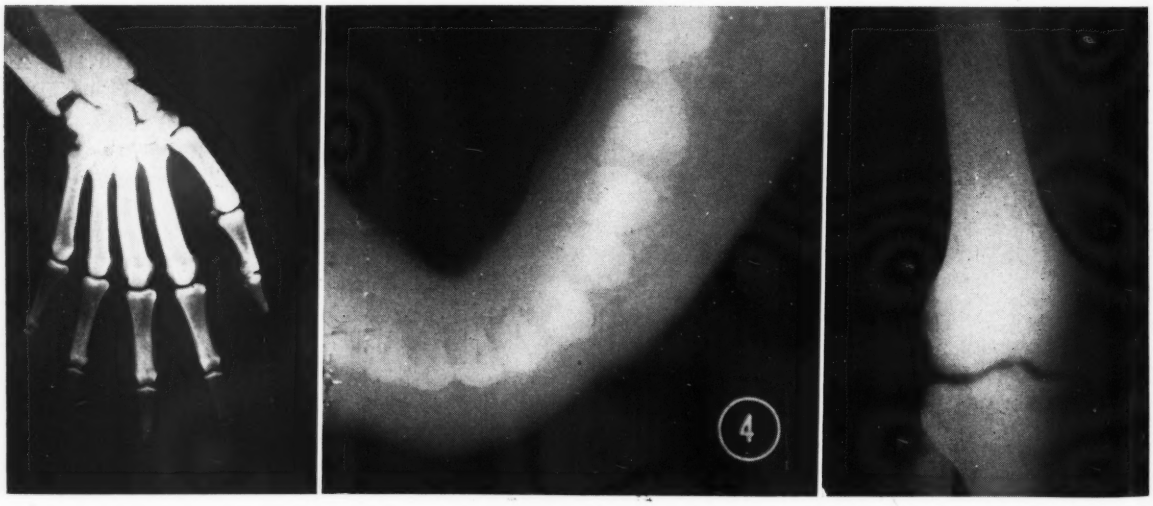
Hemopoetic Functions—There is no absolute correlation between the

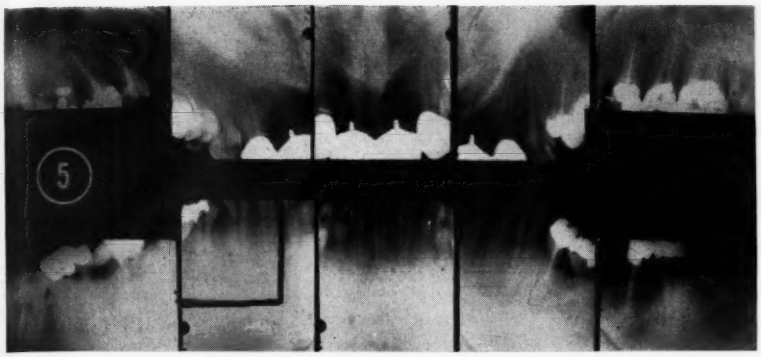
[2]Pines, Bernars, and Lederer, Max: Osteopetrosis: Albers-Schonberg's Disease (Marble Bones) Report of a Case and Morphologic Study, Am. J. Path. **23**:755-775 (Apr.) 1947.

4. ***To the left the metacarpal and carpal bones show extensive calcification. The figure in the middle is an occlusal view of the mandible to indicate the marked thickening of this bone and an increase in density so that the teeth are barely visible. To the right is the femur where absence of the medullary canal can be seen.***

[3]Plotz, Milton, and Chakales, Harry: Oral Involvement in Osteopetrosis, J. Oral Surg. **5**:16-18 (Jan.) 1954.

[4]Pincus, J. B.; Gittleman, I. F.; and Kramer, B.: Juvenile Osteopetrosis. Metabolic Studies in Two Cases and Further Observations on the Composition of the Bones in this Disease, Am. J. Dis. Child., **73**:458-472 (Sept.) 1947.





5. ***Full mouth roentgenograms show the generalized radiopacity of the maxillary and mandibular alveolar bone. The outlined area of the lower bicuspid region is seen in enlargement in Figure 6.***

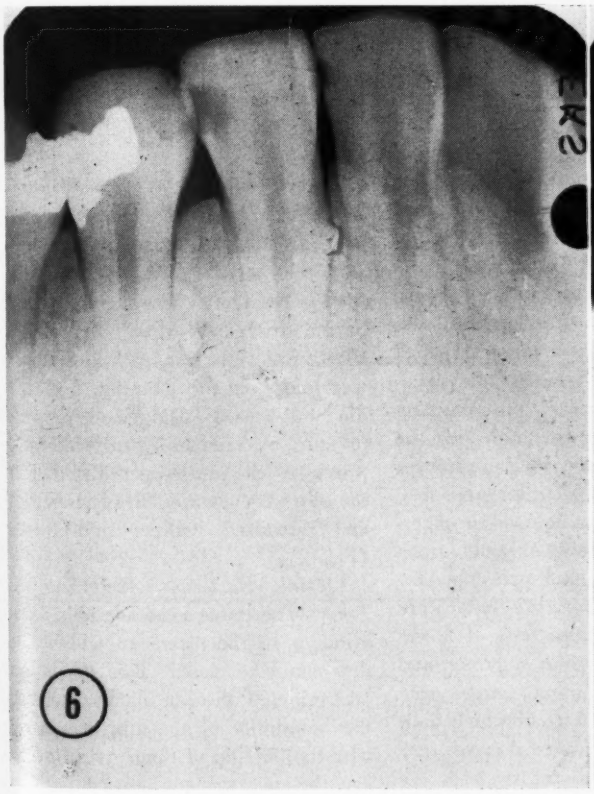
roentgenographic evidence of bone replacement and hemopoetic effect. An extremely dense bone picture may not show too great an anemia; and on the other hand, a moderate amount of petrosis may have a severe anemia. The liver and spleen may take over the hemopoetic functions.

Optic and Cranial Disturbances—A commonly found derangement is optic atrophy and other cranial palsies, apparently due to a narrowing of the brain foramina as the bone fills in. Cohen[5] noted in autopsy findings of a 32-month-old child, who had been studied for 20 months before its death, that the "maxilla and mandible showed the same disturbance as the other cranial bones . . ." From radiographic study of the alveolar process in the present case, there was more petrosis in the mandible than in the maxilla. Pathologic miscroscopic evidence from the maxillary bone, however, indicated a "mature lamellated" bone.

Tooth Vitality in Relation to Deficient Blood Supply—In the case presented, and that of others, no disturbance was noted in the dentin, and apparently no change occurred in the enamel. In the case studied by Cohen, slight change was observed in the developing teeth. Cohen noted within the mandible "barely enough space to accomodate the vessels and nerves." The suggestion that the nonvital pulps may be related to a deficient blood supply may not be amiss.

(*Continued on page* 67)

[5]Cohen, Jonathan: Osteopetrosis Case Report, Autopsy Findings and Pathologic Interpretation, Failure of Treatment with Vit. A., J. Bone and Joint Surg. **33**-A:357-365 (Oct.) 1951.



6. ***To the left is an enlargement from the full mouth roentgenograms shown in Figure 5. Note the density of the bone obliterating completely the apexes of the teeth. No trabeculation of the mandibular bone is visible.***

7. ***This is a roentgenogram from a normal mandible, for comparison.***

Accurate Duplication of the TRIAL DENTURE

SIMON MYERSON, D.M.D., Waban, Massachusetts

DIGEST

A study of the problem of an increase in vertical dimension during processing has revealed some facts not hitherto described and has led to a better understanding of the underlying causes of this difficulty. Continued experiments have yielded improvements in materials and techniques. As a result, the increase of vertical dimension due to processing may now be readily eliminated with a substantial saving of time over the usual processing technique.

It has been demonstrated that the usual procedure of overpacking, pressing, trimming away the excess from the "land," and repressing repeatedly until almost no flash appears, does not close the flask. This procedure appears to have other harmful results. A method is presented here which (1) eliminates increase in vertical dimension, (2) prevents distortion or injury to the case, and (3) produces a denture of improved physical properties. The efficiency of the method is supported by accurate tests that are simple to apply and conclusive in their results.

Change in Vertical Dimension During Processing

It has long been recognized that a substantial change in the relationship of the teeth of the trial denture to the cast, during processing, is a frequent result. It is, in fact, an expected result.

Elimination of Increase of Clinical Importance—In a paper read before the Academy of Denture Prosthetics Skinner[1] stated:

"When the solution becomes complete, a plastic dough is formed which is soft and tends to be cohesive rather than tacky or adhesive. It is at this stage that the resin is packed into the mould. If it is packed earlier than this, a porous denture base will likely result, and if it is packed later, the plasticity of the mass will be so lacking as to prevent a proper moulding."

Trial Closure—Referring to trial closure, Skinner[2] states:

"If the mould is underfilled, a porous and warped denture will result. If the mould is overfilled, a thick flash (that is, an exuding of the material from the mould onto the plaster surfaces during curing) will occur, and the mould space will be distorted and an 'open bite' will result."

Corroborative Statement — Pleasure[3] expresses the situation in the following words: "In a large series of carefully observed cases, bite openings occurred in nearly all. When remounted on the articulator with the original models the incisal pin was raised from ½ to 3 millimeters."

Extensive Tests Made—To determine the effectiveness of packing, repeated trimming, and pressing, several kinds of laboratory tests were made. These included tests of flowability by compression molding and by extrusion technique, large scale dental laboratory tests in which both experimental and practical cases were processed. The laboratory tests described herein are easily duplicated and permit of accurate measurement.

[1]Skinner, E. W.: Acrylic Denture Base Materials. J. Pros. Dent. 1:162 (Sept.) 1951.
[2]Ibid. p. 163.
[3]Pleasure, Max: Personal communication to the author, October 12, 1953.

Compression Molding Test

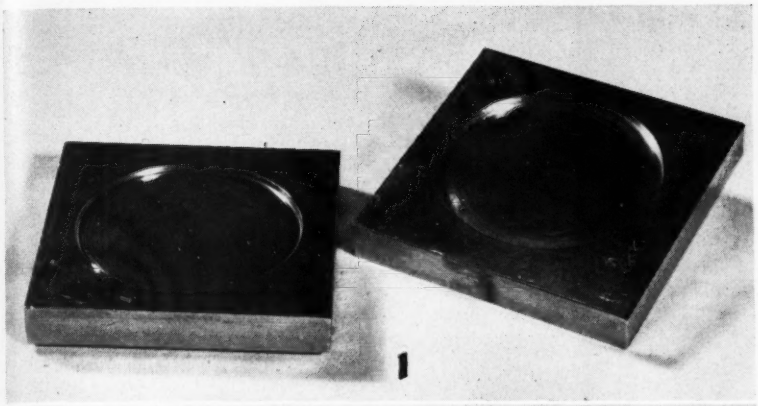
Two chrome-plated metal dies were made similar to those illustrated in Figure 1. The central cavity in the die will form a disc of 2 inches in diameter and .120 inch thick, approximately 3 millimeters. Each half of the die is .490 inch thick. Consequently, when the two dies are put together they are .980 inch thick, ½ millimeter shy of an inch. If the dies are not in complete contact when packed and pressed, the extent to which they are open can be accurately determined by measuring the overall distance of the outside surfaces of the die (Fig. 2).

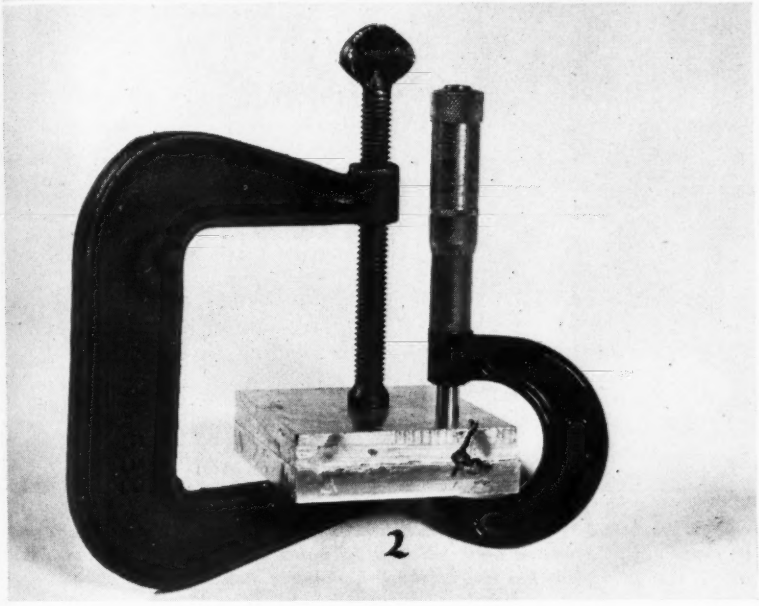
Material Selected — Three well-known brands of denture base material were selected. Mixes were made in accordance with the manufacturer's directions. The following steps were then taken:

(1) The dough was placed in one of the two parts of the die, (2) a sheet of polyethylene, .005 inch thick, was laid over the material, (3) the die was closed, using considerable pressure by hand in a sturdy denture press, (4) the press was released, (5) the dies were clamped firmly together and measured with a micrometer (Fig. 2).

Closing Variation According to Time—There was a considerable variation as to the extent to which the dies could be closed. This depended on timing. With each material tested, the flowability of the mix decreased with the passing of time. As an average, the measurement between the opposite surfaces of the die was .995 inch, an opening of .015 inch.

Completion of Test—The excess on





1. ***Chrome-plated metal dies with central cavity to form disc.***

2. ***Chrome-plated dies being measured after packing with denture resin. The dies are open .015 (fifteen thousandth) of an inch.***

the "land" was trimmed away and the polyethylene removed. (Cellophane may be used instead.) Considerable pressure was again applied, the die was taken out of the press and measured as before.

Improvement — Usually the improvement was in the order of .0015 to .002 inch.

Results Obtained by First Pressing —The following results are typical of those obtained by the first pressing:

Flowability Under Compression

	Brand A	*Brand B*	*Brand C*	*Brand D*
Opening (in inches)	.995	.991	.996	.983
	.998	.995	.991	.985
Subtract .980	.996	.993	.994	.984

(Brand D is a specially formulated denture resin)

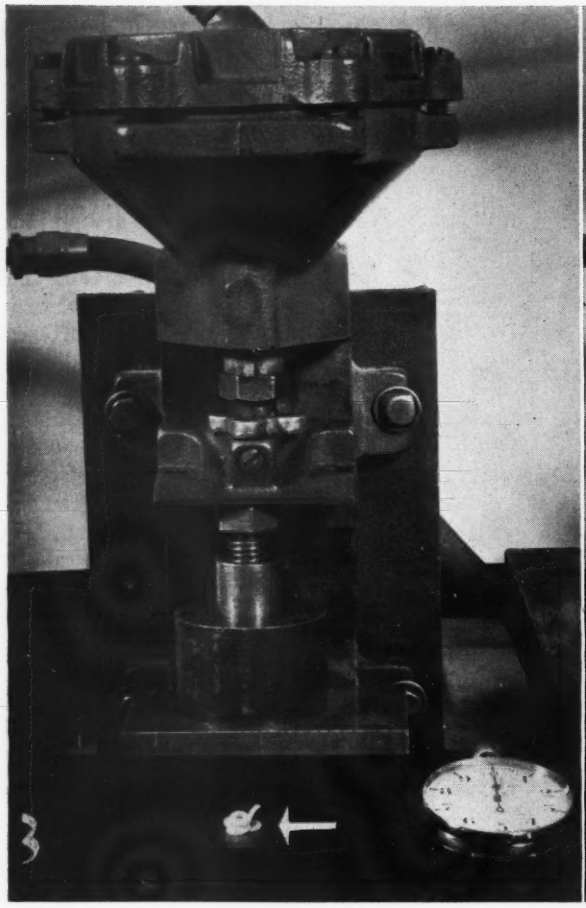
Relative Average Openings—The average opening, according to numerous tests with the first three brands, was slightly more than .014 inch, while the average opening in the specially formulated material was in the order of .004 inch. Further pressing gained very little. In the first pressing the material was at its maximum flowability. Moreover, the opening between the dies was then at its maximum and therefore permitted easier flow.

Reduced Gap Retards Flow of Material—When the dies are pressed so that the two halves are within fifteen thousandth of an inch (.015) of contact the gap is too small for these materials to flow freely even under excessive pressure. In practical cases it appears that little or no damage is done to the cast in the first pressing because the pressure applied is supported by the material flowing out on the "land" as well as on the cast. In the pressings which follow, after the excess is removed from the "land," the load is borne almost entirely by the cast with a great risk to overhangs and even of distortion to the case.

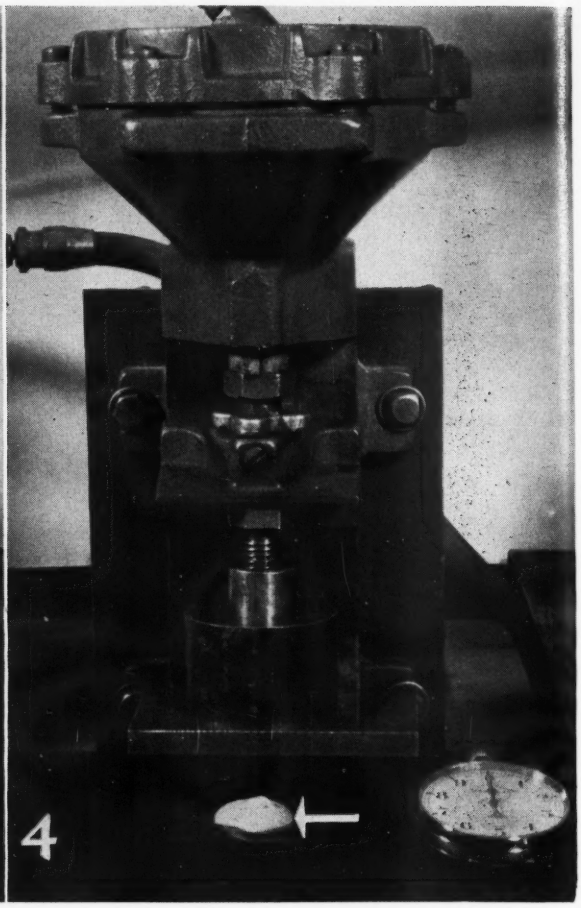
Fallacy Commonly Believed—It was commonly believed by dentists and dental technicians, and also by this author, that meticulous trial packing with repeated removal of excess material would finally result in proper closing of the flask. This is evidently a fallacy well worth noting and explaining.

Explanation Indicated—The denture material ceased flowing easily onto the "land" because the gap between the two halves of the flask became too small for the denture material to flow. It appears also that the critical space for the present materials, used in accordance with manufacturer's instructions, is in the order of .015. Additionally, with each passing minute, the material is becoming less flowable.

Principle Demonstrated—The principle involved can be illustrated by a familiar example. If a dental cement is used for the cementation of a bridge or inlay, a perfect positioning of the restoration can be readily obtained if the cement is sufficiently



3. *Showing the extrude obtained with regular top brand of dental resin. Note how extrude retains its shape.*



4. *Showing the extrude obtained with the specially formulated material. Note its much greater mass. Note also that it has lost its shape because of flowability.*

flowable; and if it is not, it is impossible to apply sufficient pressure to push the piece completely into place.

Flowable Material Preferred—It should be obvious that the stiffer the denture dough is, the more difficult it will be to completely close the opposing or complemental halves of the flask. The reverse is equally true; the more flowable a material is, the more nearly it approaches the liquid stage, the easier it will be to close the flask completely.

Former Thin Mix Unsuitable—Formerly, a thin or fluid mix of the usual acrylic denture materials would not have produced a denture of suitable physical properties when processed. The wet or soft mix in these resins resulted in poor flow during molding and in porosity in the finished denture. For that reason, manufacturers of these resins include instructions for users to wait until a tough or snappy consistency is reached before packing. The writer has confirmed this fact by testing several of the popular brands including the three referred to in the tests cited.

Extrusion Test

A cylinder with an inside diameter of 1 10/32 inches was used in this experiment. The dough was placed in the cylinder and hydraulic pressure of 100 pounds was applied to the piston for five seconds. Figure 3 illustrates a typical extrude when one of the three popular brands referred to previously was used and Figure 4 is illustrative of the result obtained when the new, more flowable resin was used.

Time of Packing Important—In this type of test, time of packing is even more critical than in the previous test. In fact, if packing is delayed as little as two or three minutes beyond its regular working time, there will often be no extrude with the usual denture resin. Moreover, if the dough is removed from the dies after the first pressing and placed in the extrusion machine, there will usually be no resin extruded unless the pressure is greatly increased.

Elimination of Trial Packing—It seemed essential to the solution of the problem of bite opening, which occurs during the usual processing technique that trial packing be eliminated. To safely eliminate trial pack-

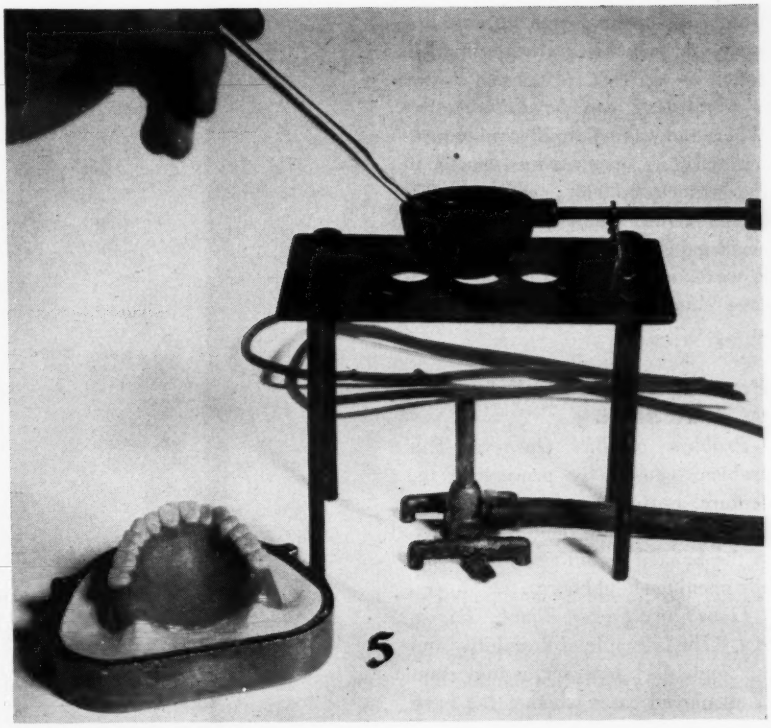
ing by the compression molding process, it is necessary to provide a resin that can be mixed and packed while in an extremely flowable state.

Satisfactory Resin Developed—A thoroughly flowable denture resin was developed which requires a mixing time of approximately one minute, and packing and closing of the flask immediately thereafter. This new resin meets the American Dental Association Specification Number 12, and has been certified. (Duraflow). It is craze proof and is not appreciably weakened by the process of repairing. In fact, processed pieces which were broken, repaired and retested, continued to meet the American Dental Association Specification Number 12.

Resin Tested—Dental Laboratory Type Test experiments were conducted with the new resin using trial dentures. These were then processed and remounted on the articulator and the opening at the guide pin measured with a feeler gauge. The processing procedure was in most respects similar to the conventional processing procedures. The trial denture was invested in one-half of the flask. A new step was introduced at this point.

New Step in Processing Procedure—This step requires a small pot or tin of melted wax. The wax must be liquid, but not too hot, certainly not steaming. Wax in solution might well be substituted. A brush is used for dipping into the wax and painting the "land," (Fig. 5). Only soft carding wax or the like should be used. Baseplate wax will not do. The painted-on wax film will be in the order of .004 inches to .008; the exact thickness is not important.

Escape Gap Produced Advantages of Processing Procedure—The second half of the flask is pressed into metal-to-metal contact with the first half; the second half of the investment is then poured. When the flask is opened and the wax is removed, a shallow but entirely sufficient space is formed through which the flowable denture base material will escape and the flask may be completely closed quite easily. A second advantage arises from using wax instead of soap. It is not necessary to wait until the investment dries thoroughly before painting the wax on the "land"; the second half may be poured immediately thereafter.



5. ***Ready to apply melted wax on "land" as separating medium before completing the investment.***

Cast and Investment Coated—After the investment has been thoroughly cleaned, it is important that the cast and the investment are coated with a tin foil substitute or tin foiled. Otherwise this denture material may penetrate into the investment and be difficult to remove.

Method for Making Mix—(1) The monomer and polymer should be measured out carefully. If the polymer is measured by volume, the correct rate of polymer to monomer is three to one; that is 30 cubic centimeters of polymer to 10 cubic centimeters of monomer.

(2) The monomer is poured into the mixing jar first and the polymer is poured into the jar immediately afterward. The two are immediately mixed, for not more than one minute. The mix appears quite dry at first, but begins to moisten after forty seconds and should be slightly moist and glistening at the end of the minute.

The mix is removed from the jar and placed immediately in position in the flask and pressed. Sufficient material should be mixed to make certain of excess. For the average full upper denture, 30 cubic centimeters of polymer to 10 cubic centimeters of monomer will be ample.

Procedure Widely Tested—The denture tests were carried out on a large scale and over a considerable period of time. Six commercial laboratories were supplied with the new resin and were instructed in the described technique. Six prosthetic specialists, at least two schools of dentistry, and several governmental agencies have been provided with written descriptions of the technique and with the resin.

Satisfactory Results Reported—The results reported from these sources confirmed the results of numerous tests on practical and experimental cases made under the author's direc-

tion. Bite opening was either eliminated or reduced to a negligible factor.

Small Gap can be Eliminated—Where the wax coating technique was omitted, bite opening was usually in the order of .003 inches to .005 inches at the guide pin. Even this small gap is eliminated if the "land" is wax coated to form a shallow escape completely encircling the denture.

Partial Dentures, Effect Of Flowability

Problem of Bite Opening—This problem caused by processing the denture, is not as critical in partial cases as it is in full dentures. In fact, in the banked technique little if any bite opening should occur.

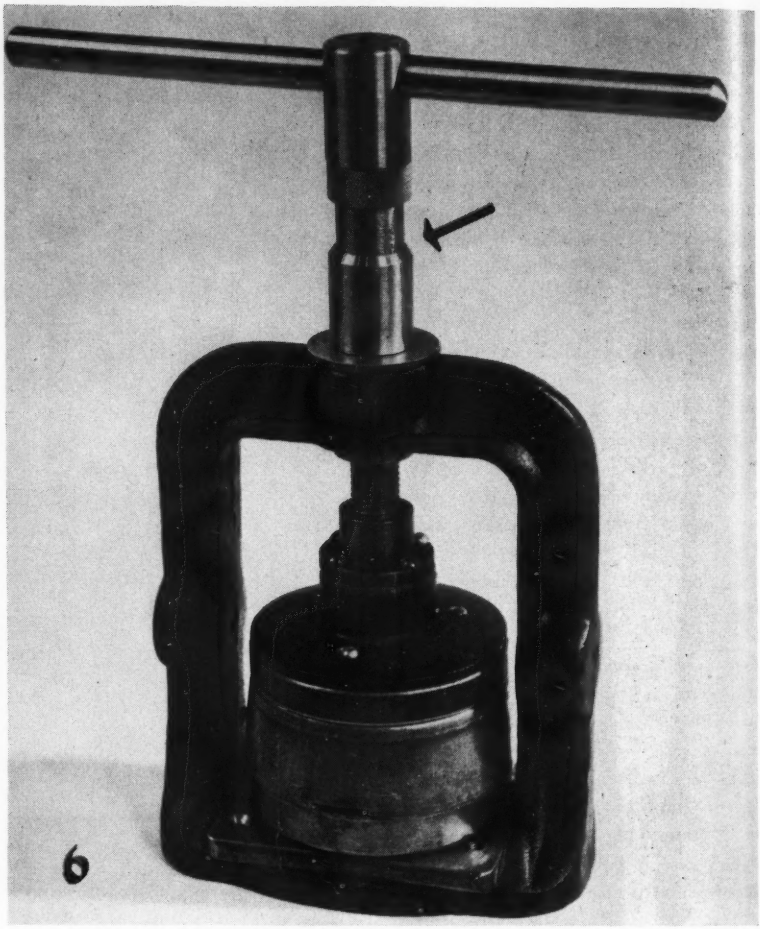
Flowability Factor Equally Important—The principle of flowability and the single pack however, is important in all partial cases whether the teeth are on the same side as the cast, as in banked cases, or on the opposite side of the cast as in the usual technique.

Method of Applying Material—The soft, freely flowing material may be applied over the tooth area or areas, pushed in with the finger or a blunt instrument, particularly beneath and around the teeth. If the finger is used, it should be covered with polyethylene. Sufficient material should be used to ensure a considerable excess.

Technique Preferred in Partials—In either type of processing technique discussed, it is advisable in all partials to use the wax separator technique described.

Opening the Flask—This is unnecessary and should be avoided. The experienced technician can easily judge when he has more than enough material.

Risk of Displacement Reduced—In the first packing, the material is at its maximum flowability; the risk of displacement of the attachments, therefore, or of teeth is virtually eliminated. It is equally obvious that opening of the flask and repeated packings will increase the risk of displacement of the attachments, and of breakage to overhang.



6. ***The micrometer-equipped flask press. The knurled nut A is just below the handle. The smooth part of the nut is calibrated vertically. Below that is the larger nut B calibrated horizontally along its upper edge.***

Loss of Vertical Dimension Avoided—In the technique described, measurements and checking have been made after the case was completed. Moreover, some care must be exercised to avoid overpressure. Too heavy pressure compresses the present-day flasks, and may result in *loss* of vertical dimension.

Flasks Made of Hard Metal Used—Admittedly, this possibility is rare; nevertheless, this risk may be overcome by means of flasks made of harder metal than present-day flasks and by a flask press designed to permit measurements to be made before the case is processed. Such measurements permit closing of the flask after the case is packed to the exact point that it was closed when investment of the case was completed. Such a press is illustrated in Figure 6.

Press Closed—After the second half of the investment is poured, the flask should be put into the press and closed by turning the handle of the screwpress.

Micrometer Reading Taken—A micrometer reading can be taken by means of the micrometer attachment. After the dough is packed, the flask should be pressed until the reading is identical to the previous reading.

Little Grinding Required—The methods described eliminate or reduce to a minimum, the usual increase or decrease of vertical dimension during the reproduction of a

trial denture. Consequently, when placed in the patient's mouth the dentures will require little and often no grinding.

Type of Teeth Unimportant—Whether teeth be of the anatomic cusp formation or non-anatomic occlusal structure the method presented, by preventing unequal and unnecessary pressure on the case, (1) serves also to prevent distortion of the cast, (2) prevents breakage of overhang, and (3) prevents disturbance of teeth or attachment relations in the investment.

Summary

A technique and a material have been developed to achieve accuracy in the reproduction of the trial denture.

The material was formulated to achieve greater flowability and it was shown that flowability greatly influences the difficulty in closing the flask and the pressure required to do so. A method for easily creating a gap between the upper and lower "land" was described. Tests were described which proved the accuracy of the results achieved when dentures were processed as described.

Equipment was described and illustrated which enabled the operator to close the flask accurately and to test that accuracy during the processing operations.

140 *Paulson Road.*

Enlargement of the Parotid Glands

ENLARGEMENT of the parotid glands has been noted in diabetics, in cirrhotics, and during recovery from undernutrition. Histologic studies may show hyperplasia and an increase of fat in the glands, but the mechanism of the enlargement is obscure. Attempts to establish whether the parotids have a role in carbohydrate metabolism have led to contradictory results. Different authors have ascribed a hypoglycemic and a hyperglycemic action to the glands, and some of the most careful work has failed to reveal any action at all.

Insulin Activity Found— Takaoka,[1] et al. have now found insulin activity in the parotid glands from two diabetic patients and from six alloxan-diabetic dogs, but not in glands from a patient without diabetes or from normal animals, nor in other organs. Best, et al.[2] discussed the many pitfalls in this type of work, and unfortunately Takaoka, et al. do not give the absolute values of the blood-sugar levels in their assay animals.

Further Study Needed—Nevertheless, while it remains unlikely that normal parotid glands contain significant amounts either of insulin or of a hyperglycemic factor, the possible hormonal activity of hyperplastic glands clearly should be further studied, in view of the suggestion that clinical enlargement may sometimes represent a compensatory mechanism for the lack of insulin—though this hypothesis does not explain cases of parotid hyperplasia without a deficiency of insulin. Takaoka, et al. suggest that the glands may influence metabolism as well.

Adapted from Lancet No. **6846**: 1008 (November 13) 1954.

[1]Takaoka, Y.; Yamaguchi, T.; Yamada, N.; and Kosaka, K.: Klin. Wschr. **32**:369, 1954.
[2]Best, C. H.; Jephcott, C. M.; and Scott, D. A.: Amer. J. Physiol. **100**:285, 1932.

Marble Bone Disease: Report of a Case

(*Continued from page* 61)

Prognosis and Treatment

The prognosis and treatment of osteopetrosis generalisata rank with the tragedies of medical practice. Although not completely debilitating, the progressive anemia, with its sequelae makes the prognosis unfavorable. Treatment is symptomatic.

Oral Surgery Department
University of Illinois Hospitals.

Authors' Note: Doctor J. O'Hearn first noted the gross and radiographic abnormality in this patient.

Should Primary Teeth Be Removed to Make Room for the Eruption of Permanent Teeth?

Major Comment

Do this, but carefully, and watch!

From Editorial, A Panel Discussion of Orthodontics, *American Journal of Orthodontics* **40**:387 (May) 1954.

Approach to MOUTH RECONSTRUCTION—

Part Two

MURRAY N. RUBINSTEIN, D.D.S., New York

DIGEST

Among the established principles in mouth rehabilitation, oral diagnostic procedures are important. Some oral diagnostic procedures were described in Part One of this series. In this article, the second in the series, additional preliminary measures to total mouth reconstruction are presented in detail.

The Wax Check Bite

As mentioned in the first installment, the wax check bite, one of the most important oral diagnostic measures, eliminates lateral displacement of the condyles and also strain of the temporomandibular joint. The only change in the procedure is that aluwax instead of baseplate wax is the medium used. This is actually a double layer of soft wax with a single sheet of gauze between the layers. The following is the method used:

1. The wax is softened in warm water at about 120° and placed on the upper arch firmly against the teeth.

2. The patient is directed to bring the teeth together with extreme gentleness while retruding the mandible. It is recommended that the patient practice this effortless or unstrained movement a few times before the wax is inserted so that he may understand the objective of the measure.

3. It is also helpful to ask the patient to move the maxilla "forward" and then close on the posterior teeth. The natural reaction is to retrude the mandible. Cuspal contact should be avoided to prevent deflection of the mandible with resultant temporomandibular strain (Fig. 8).

4. With the difficult case, for example, in a fatigued, tense, or irritated patient, premedication is advisable. Seconal, 1 1/2 grain, before retiring may be given and repeated one hour before the office visit. The patient should be accompanied to the office[11]

5. After the casts are mounted on an adjustable articulator, two additional wax records are taken. These are used to check centric registration positively, inasmuch as centric relation is the only position that can accurately be duplicated. Should the cusps of the mounted models fall accurately into the imprints of at least two out of three recorded check bites, it is reasonable to assume that the mounting is correct.

6. As previously stated, the mounted models will more reliably afford appraisal of discrepancies in occlusion and readily disclose differences, if they exist, between centric occlusion and centric relation. This relationship must be established before any plan of correction can be successfully attempted.

Additional Measures

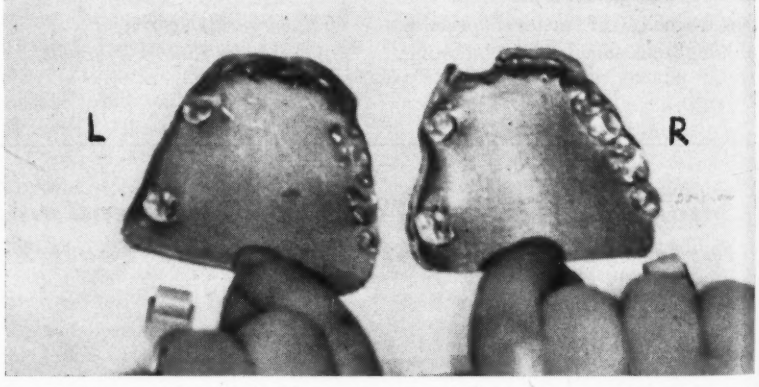
(1) The patient is photographed for complete preoperative record and study, (2) full face, profile, and intraoral views are taken, and (3) the freeway space is determined.

Determination of Freeway Space, First Method

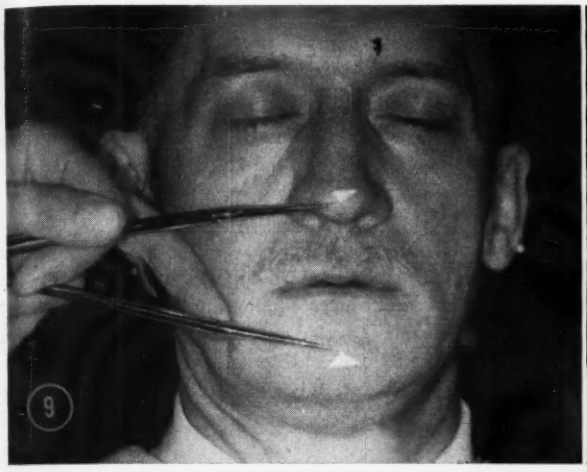
The freeway space is equal to the difference between the teeth in occlusion and the physiologic rest position of the mandible. Niswonger[12] defined the rest position of

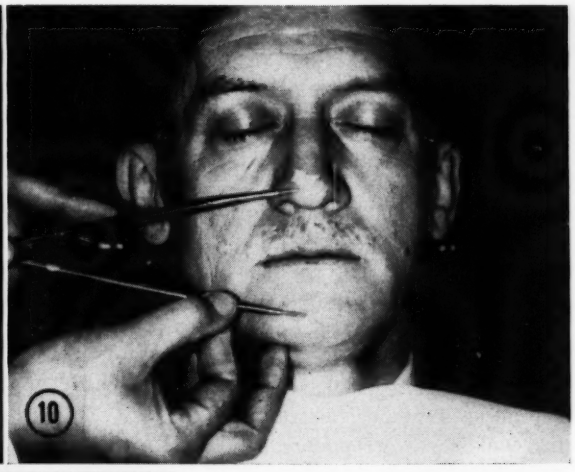
[11]Harris, E.: Centric Relation of the Mandible, JADA **37**:565 (Nov.) 1948.

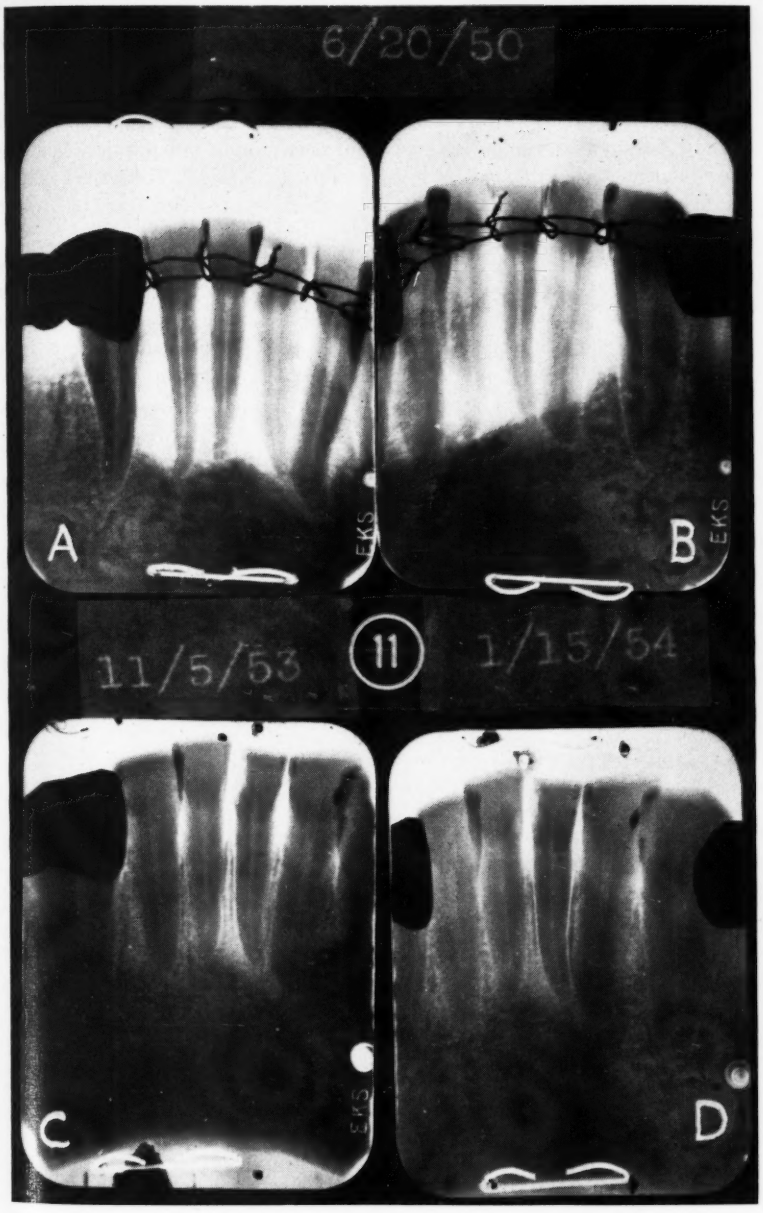
[12]Niswonger, M. E.: Obtaining the Vertical Relation, JADA **25**:1842 (Nov.) 1938.



8. ***The bite on the right is bitten through and is therefore unacceptable. The wax should not be torn.***







9. ***Measurement of physiologic rest position.***

10. ***Measurement of centric occlusal contact.***

the mandible as "that position in which the mandible is involuntarily suspended by the reciprocal coordination of the muscles of mastication and the depressor muscles with the teeth separated."

Characteristic of Normal Occlusal Function—The freeway space is recognized as a normal and necessary feature of normal occlusal function. It not only characterizes the rest position of the mandible but also permits prolonged rest of the supporting tissues of the teeth between periods of stress such as mastication. It has been demonstrated that encroachment upon the freeway space in the course of occlusal reconstruction is destructive to alevolar bone with the remaining teeth depressed and/or absorption of the ridges.[13]

A Simple Procedure—Pleasure[14] has presented a simple procedure for determining freeway space:

1. The patient is seated in the chair at a level position. Two small triangles of adhesive tape are at-

[13]Thompson, J. R.: The Rest Position of the Mandible and its Significance to Dental Science, JADA **33**:151 (Feb.) 1946.

[14]Pleasure, M. A.: Correct Vertical Dimension and Freeway Space, JADA **43**:2 (Aug.) 1951.

11A *and* **11B.** ***Hpothothyroidism was the apparent cause of original condition.***

11C *and* **11D.** ***Improvement is obvious in recent views (3½ years' interval).***

tached to the patient's face directly in the midline with the apexes pointing toward each other; one on the tip of the nose and the other on the point of the chin.

2. The patient must be made to sit comfortably erect with the legs uncrossed and hands resting easily on the arms of the chair. The back and headrest are depressed so that the patient is in no way supported by them. Removal of the support makes the posture of the head and neck and likewise the intermaxillary relation dependent on normal muscle tonus; the equilibrium of opposing muscle groups.

3. The patient may be asked to moisten the lips with the tongue or to sip a little water to induce slight mandibular movements. Phonetic and functional aids may be used to further enable the patient to assume the physiologic rest position: the patient is instructed to say "m" or "Emma" slowly and then swallow, an action which tends to bring the mandible back to the rest position. The regularity of return to the tentative physiologic rest position can thus be checked.

4. When the operator is satisfied that the position of the mandible is consistent, a pair of calipers is adjusted lightly to the distance between the apexes of the adhesive triangles on nose and chin. This setting can be checked several times within a couple of minutes to prove its stability. A reading on a millimeter ruler can now be recorded (Fig. 9).

5. The chair is adjusted for the patient's support. He is asked to close to occlusion in approximate centric relation. The space between the apexes is recorded at this position and compared with the original record (Fig. 10). The difference between the two readings is the freeway space.

6. Since it has been established that the normal freeway space is approximately 3 millimeters anteriorly or 1½ to 2 millimeters at the first molar-bicuspid area, comparison may now be made with the patient's recorded position. Any deviation from the norm must again be noted in the diagnostic notes for correction in the treatment plan.

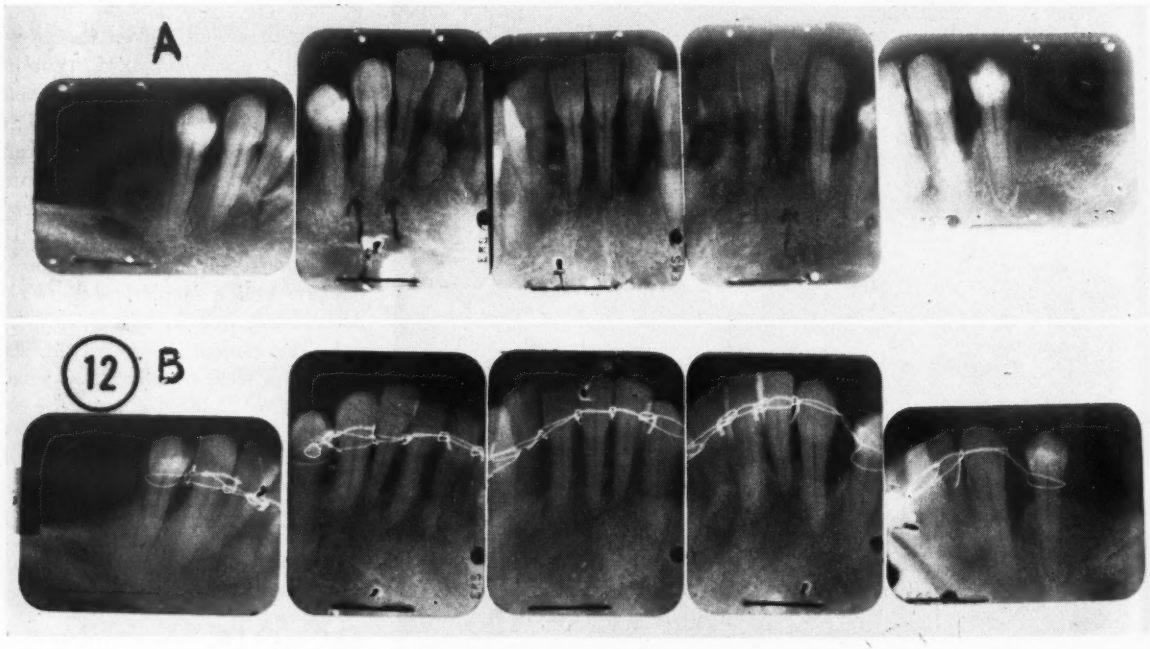
7. With the procedure described, freeway space may be changed at any stage of treatment without noticeable discrepancy. It is unnecessary to replace the adhesive markers each time as it is only necessary to set the calipers at the most stable interval between them to establish physiologic rest position.

Adequate Space Allowed—After an allowance for the average freeway space has been determined, the resulting position of the jaws may be assumed to be the normal location for the plane of functional occlusion for the individual based on his own physiologic rest position. It has been shown by x-ray studies that cases restored within the boundaries set by the physiologic rest position are successful in that any change in the position of the condyle will be a vertical one with no appreciable shifting anteroposteriorly, which will then allow freedom of movement.

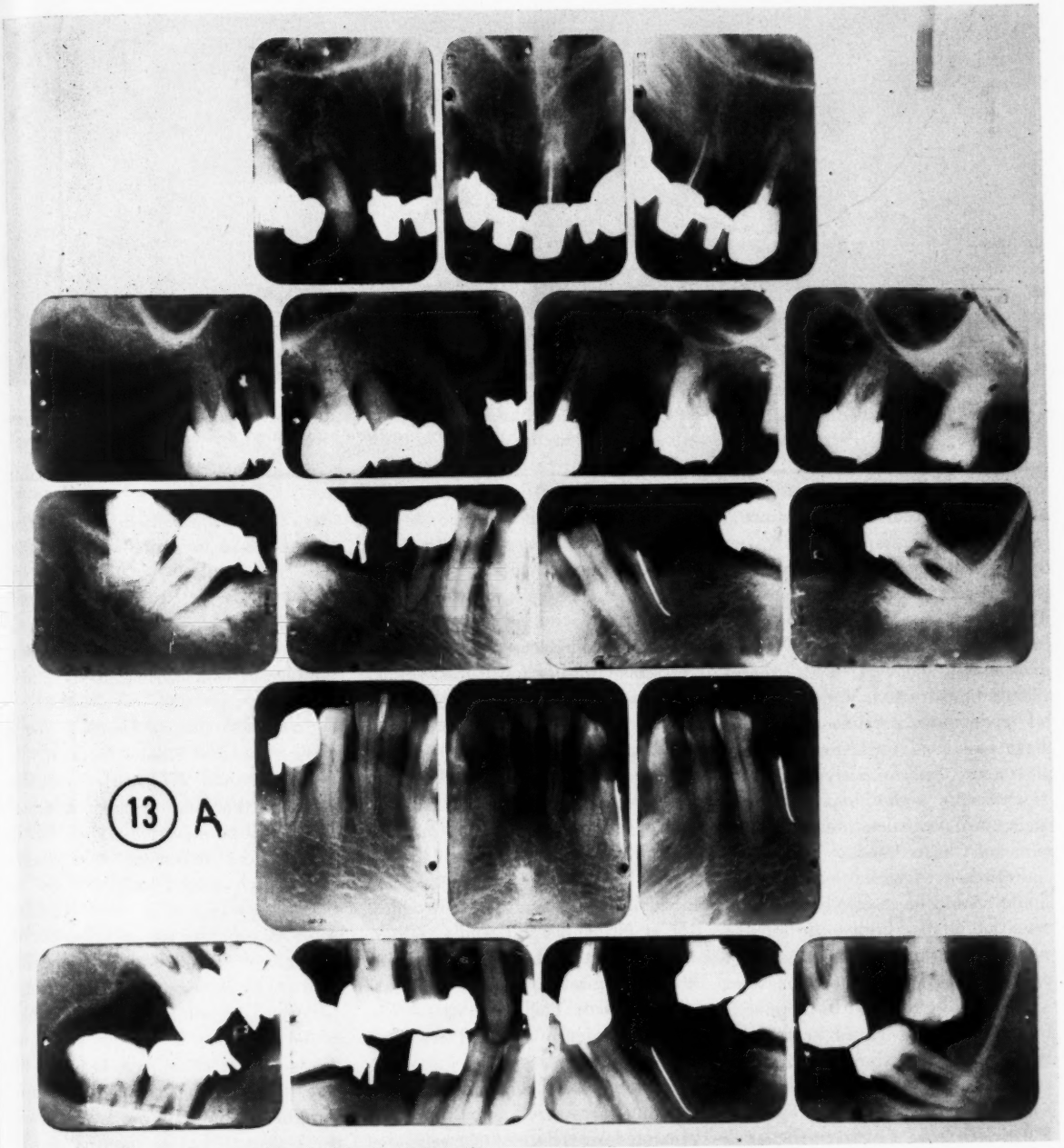
Second Method—Another method of determining rest position was presented by Kazis.[15] The object of this method is to tire the depressor muscles:

1. The patient is seated erect in the chair and asked to open the mouth as wide as possible and to hold this position until there is a noticeable quivering of the orbicu-

[15]Kazis, H.: Complete Rehabilitation Through Restoration of Vertical Dimension. JADA **37**:19 (July) 1948.



12A. *Results of accumulated neglect.* **12B.** *Results from simple care.*



13A. ***Radiographs showing the extent of alveolar destruction.***

laris oris muscles around the lips. This may take from three to five minutes.

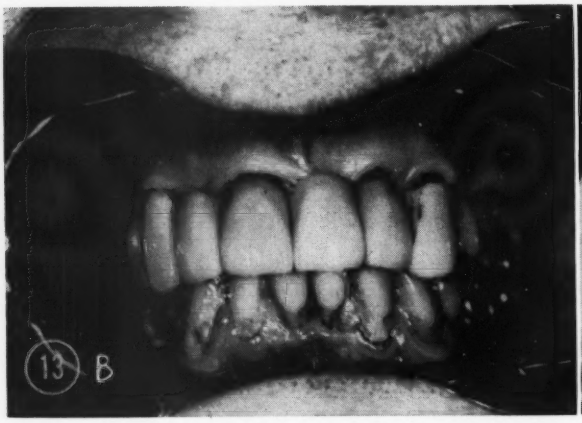
2. The patient is then told to close, swallow, and rest. The mandible will maintain this rest position for sufficient time to permit recording of the space.

3. The space can be recorded by means of the adhesive tape markers placed as in the first method described.

Determining the rest position accurately is extremely important because it is the starting point of the bite.

Correlation of Clinical and Roentgenographic Results

Having recorded diagnostic information on the patient's chart, clinical results may now be correlated with x-ray findings to determine retention or extraction of questionable teeth. In cases involving a systemic factor, consultation with the physician is advisable. The subject of foci of infection was thoroughly reviewed in the June, 1951 issue of the *Journal of the American Dental Association,*



13B. ***Case involving molar vertical closure. (Deep anterior overbite.)***

13C. ***Palatal view. Teeth splinted. Missing teeth are restored by precision attachment denture.***

and more recently by Grossman.[16] The record shows that many teeth have needlessly been sacrificed, with no apparent physical improvement in the patient.

Many Teeth Reclaimed — Teeth hopelessly involved with disease should be extracted. Modern methods of endodontic treatment, however, have reclaimed for extended usefulness many teeth formerly condemned. Consultation with the patient's physician will help determine if extraction must be ordered.

Retention Favored — Reasonable doubt should be resolved in favor of retention. It has been quite satisfactorily demonstrated that "the properly treated root filled tooth may not only be safely retained in the mouth, but it will also perform its function in a manner very similar to that of a vital tooth".[17]

Periodontal Involvement

In regard to teeth with periodontal involvement the following factors should be considered:

(1) *Remaining Bone* — The less bone remaining, the poorer the prognosis since the clinical crown or lever arm is increased while the clinical root or anchorage arm is decreased. The minimum requirement for retention is that at least half the bone should remain around the root of a tooth to ensure good prognosis. A word of caution may be inserted here: do not depend exclusively on radiographic evidence as the sole basis for diagnosis. Two cases are presented to emphasize this advice.

Illustrative Cases: From the x-rays (Figs. 11 A and B) it would seem these cases might fall into the category requiring extraction. A medical history of hypoparathyroidism was the apparent cause. Simple interdental wire ligature (which will be discussed later) and relief of traumatic occlusion plus medical care produced the results (Figs. 11B and C) shown in the illustrations. These teeth are still serving satisfactorily.

Case Two: The other case, (Fig. 12A) apparently resulted from accumulated neglect. The patient's economic position forced postponement of necessary care. When she presented for treatment, she requested that an attempt be made to save the teeth. Once again, simple wire ligature and periodontal care was responsible for the improvement visible (Fig. 12B).

(2) *Mobility*—Teeth with class 3 mobility or those which can be depressed in their sockets present a hopeless prognosis and should be extracted.

(3) *Number of Teeth Remaining* —Cases with few teeth remaining are of course less desirable since greater amounts of strain must be borne by each tooth. Especially must discretion be exercised in patients with strong jaw musculature.

(4) *Tooth Distribution* — Teeth situated for favorable distribution as abutments and permitting the insurance of balanced occlusion render a better prognosis.

(5) *Teeth out of Function for a Long Period of Time*—Teeth of this type will show evidence of disturbance in that the alveolar trabeculation will be more loosely woven. If through the placement of a restoration such teeth are returned to masticatory stress, it will require some time before the effectiveness of the alveolar process is sufficiently restored by bone condensation for the patient to be comfortable in the use of the appliance. It is good procedure to place teeth which have been out of function into an intermediate stage of light function before they are used as abutments.[19] A temporary partial occluding with such teeth will be helpful in aiding reorganization of the alveolar and periodontal support.

(6) *Splinting*—The use of multiple splinting after proper treatment in periodontally involved teeth will usually result in their favorable retention and improvement. This will be discussed at length later with illustrations of practical cases (Figs. 13A, 13B, and 13C).

(7) *Health of Patient*—With pa-

[16]Grossman, L. I.: Dental Focal Infection, DENTAL DIGEST **58**:448 (Oct.) 1952, **58**:490 (Nov.) 1952, **58**:542 (Dec.) 1952.
[17]Miller, H. B.: Biologic Appraisal of the Pulpless Tooth, N.Y. Dent. J. **19**:119 (March) 1953.
[18]Miller, S. C.: Text Book of Periodontia, Philadelphia, The Blakiston Company, 1947.
[19]Moses, C. H.: Natural Laws in Dentistry, J. Prosthet. Dent. **3**:307 (May) 1953.

tients in poor general health, it is better to limit the risk of retention to only those teeth that can definitely be classified with a good prognosis.

(8) *Patient Cooperation* — The ability and diligence of a patient in tooth-brushing and home care or cooperation in eliminating biting habits or other factors which are under voluntary control must be made clear. The patient must be advised of his responsibility and the limitations to successful maintenance created by a lack of cooperation.

(End of Installment Two)

200 *Central Park South.*

Atypical Facial Pain

A. M. G. CAMPBELL, M.A., D. M. OXFD., F.R.C.P., and JUNE K. LLOYD, M. B. BRIST., M.R.C.P., Bristol, England

Differential Diagnosis

There is considerable resemblance between migraine and atypical facial neuralgia. That both pains have a vascular basis is quite true, but it is clear that the basic pain which persists all the time in some of these cases is quite unlike migraine. On the whole this type of atypical facial neuralgia lasts much longer or is continuous. In five out of 40 cases studied there was coexisting migraine, which the patient described entirely differently, and in none of the cases has there been any hemianopia, scotoma, or fortification spectre, and the authors believe that atypical facial neuralgia probably has a slightly different etiology, particularly in view of our therapeutic results.

Trigeminal Neuraglia — There should be no difficulty in differentiation from trigeminal neuralgia with its paroxysmal attacks confined to the trigeminal territory and its trigger zones.

Carotid Aneurysm — Differentiation from carotid aneurysm can be difficult, but focal neurologic signs and a third-nerve palsy usually make the diagnosis easier; but, when there is any reasonable doubt, an arteriogram should be made. An arteriogram in one case showed a carotid thrombosis which had given rise to atypical facial pain of the type described. In this case there was also slight proptosis of the affected eye.

Teeth, Sinuses and *Eyes*—Most of the patients have at one time or another had their teeth, sinuses, and eyes examined, but in none of them had there ever been any local radiologic or clinical evidence of abnormalities which could have been subjected to unnecessary removal of teeth and drainage of sinuses, some of which operations have relieved the symptoms.

Costen's Syndrome—This pain might be confused with Costen's (1934) syndrome or a malfunction of the temporomandibular joint with an abnormal bite, but this type of pain is much more localized to the area of the joint, and there is no evidence of sympathetic disturbances.

Neurosis—Lastly, some neurologists believe that this type of pain is associated with neurosis. It is true that people with chronic unrelieved pain do often develop a psychological overlay, but the authors are satisfied that this is not the prime factor, and the discomfort of the treatment of immobilization, which is welcomed by most patients, argues against a neurotic basis of this pain.

Conclusions and Summary

The authors have described what we prefer to call atypical facial neuralgia in 40 patients and various maneuvers for relieving this pain are suggested.

The authors consider that it is related to the sympathetic nervous system in the neck and to the release of a metabolite, which is histamine.

The basis of treatment has been to break a vicious circle on either the efferent or the afferent side. Any interruption on the afferent side, such as section of the great auricular nerve, will probably prove disappointing. By far the most useful therapy has been immobilization of the neck; but some cases need different treatment.

Many factors are still not adequately explained or proved, and further study of such cases in the future is needed.

Adapted from Original Articles, *Lancet* No. **6847**: 1038 (Nov. 20) 1954.

We Can't Pay You, But—

No DENTAL AUTHOR can ever be *paid* for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often spends money for drawings, photographs, models, or graphs. We should like to help defray some of these expenses.

Until further notice. DENTAL DIGEST *will allow* $25.00 *toward the cost of the illustrations provided by the author of every article accepted.*

If you have a constructive idea, an innovation, a new result of tried and proved experiment, put it down in writing, illustrate it, and send the material to: DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

We can make suitable black-and-white cuts from Kodachrome transparencies.

We hope that you will accept this invitation!

CALCIUM *and* PHOSPHORUS *of Blood*

Calcium

The average serum calcium in man is 10.4 milligrams per 100 milliliters with a narrow range of between 9 and 11 milligrams per 100 milliliters. The blood cells are almost free from calcium. The level of calcium is remarkably constant; neither the feeding of diets high nor moderately deficient in calcium alters it significantly. There is no diurnal variation, nor does the level change in old age, although it does tend to be higher in the newborn than in the adult. This constancy is believed to be controlled by the parathyroid gland since abnormal levels of parathormone in the blood is one of the few factors capable of causing large changes in blood calcium.

Calcium of the Plasma—This is known to be present in three forms. If blood is dialysed, it is found that only between 50 and 70 per cent of the calcium diffuses. This shows that some of the calcium must be present in a colloidal form and there is much evidence to show that this non-diffusible calcium is attached to the plasma protein. There is an equilibrium between the amount of diffusible calcium and the amount of protein-bound calcium; if the former is lowered by dialysis or precipitation, calcium is released from the protein to restore equilibrium.

Estimation of Calcium Ions—One cause of confusion has been the difficulty of estimating directly the calcium present as free ions. The only method at present available which measures calcium ions without disturbing the equilibrium between free and bound calcium is a biological method which depends on the fact that the amplitude of beat of a frog's heart varies according to the ionic calcium in the medium perfused through it. By comparing the amplitude when media containing the unknown solutions of calcium are perfused, with that produced by media containing known concentrations of calcium, it is possible to estimate the concentration of calcium ions in the unknown.

Diffusible Unionized Calcium—It has been thought that some of the diffusible calcium of blood is present in a unionized form because the amount of calcium not bound to protein is slightly more than the amount found by the frog heart method to be in an ionic form. The amount of diffusible, but unionized calcium is small, probably about 5 per cent of the total, and it has been suggested that it may be present as a citrate. It is known that citrate is present in blood and that this ion can form complexes with calcium. The addition of citrate to blood in vitro causes a rise in the diffusible calcium; that is, it favors the splitting up of the protein calcium complexes.

Approximate Amounts of Blood Calcium—The different forms of blood calcium are therefore present approximately as follows:

	per 100 milliliters
Nondiffusible (combined with protein)	5.0 milligrams
Diffusible (a) as ions	4.5 milligrams
(b) non-ionic (citrate ?)	0.5 milligram
Total approximately	10.0 milligrams

The Phosphorus of Blood

Phosphorus occurs in blood in several forms; namely, inorganic phosphate (mostly HPO_4 ions), esters of phosphate and sugar, phospholipids and mucleotides. The figures are usually given as milligrams of phosphorus (not phosphate) per 100 milliliters of blood or serum.

Main Characteristics—The main points to note are (1) the small proportion of P in the inorganic form and the preponderance of this form in the plasma (the inorganic P in the cells is so variable that it has sometimes been thought that it represents the amount broken down from ester P after collection of the blood), (2) the small amount of ester P in the plasma.

Inorganic Phosphate of Plasma—This is almost completely diffusible but is less constant in amount than is the calcium. It is found to fall after the ingestion of carbohydrate, following the injection of insulin or adrenalin (and presumably after the natural secretion of these hormones) and during exercise (exercise is usually followed by a small rise followed by a fall).

Common Feature—The common feature of all these events is the increased metabolism of carbohydrate which involves the conversion of carbohydrates into phosphorylated forms.

Variations—A meal rich in phosphate causes a rise in the phosphate of the serum. The phosphate content of the serum of young animals and babies is higher than in the adult, and it falls gradually during growth. A seasonal variation in the inorganic P

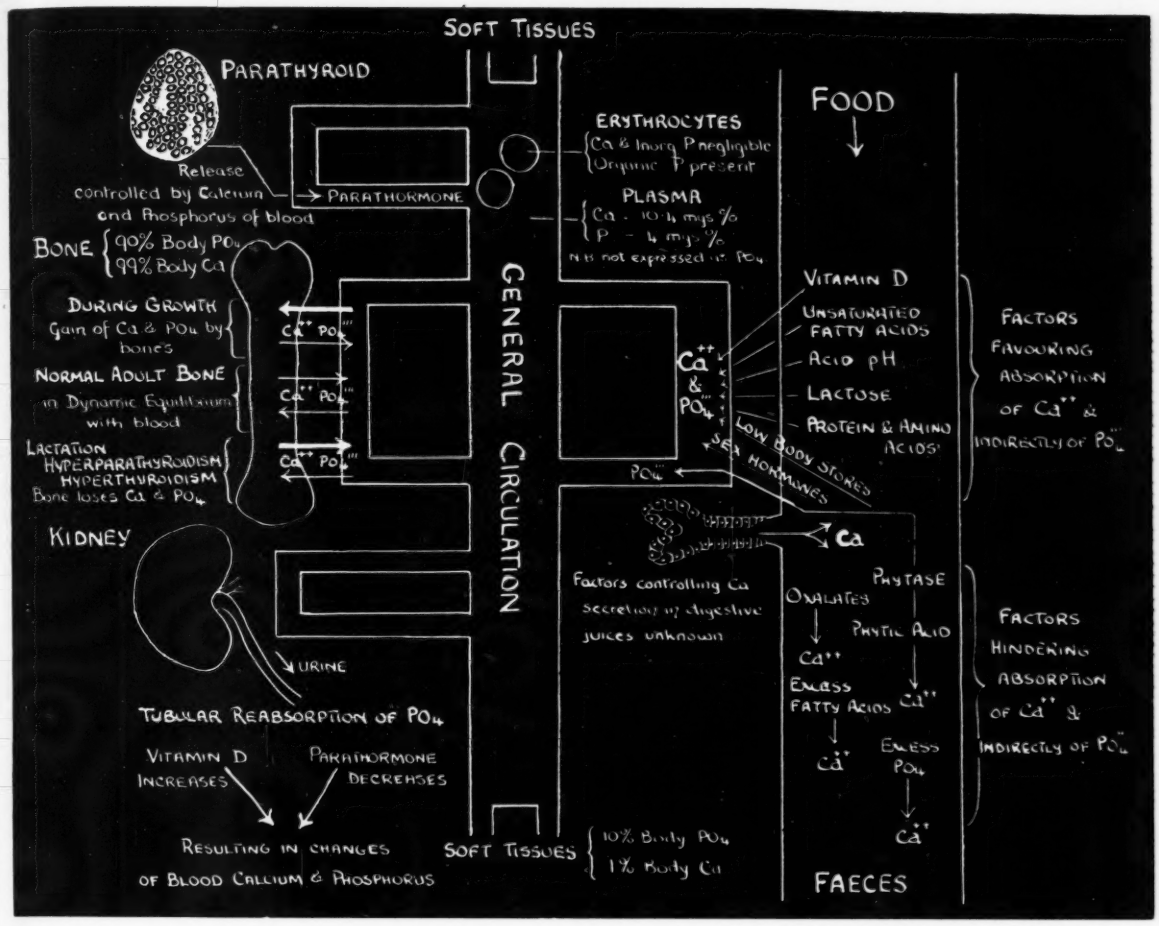


Diagram summarizing the main factors in calcium and phosphorus metabolism.

of blood has been observed in babies during their first year of life, with higher values in summer than in winter.

The Reciprocity of Blood Calcium and Phosphate

It is often stated that changes in the inorganic phosphate of serum are accompanied by changes in the opposite direction of the serum calcium. Although it is undoubtedly true that there is a tendency for this relationship to exist in blood, it is by no means invariable. Serum calcium is more constant than serum P and a fall in the latter, for example, after a carbohydrate meal, may not be accompanied by any change in serum calcium.

Equilibrium Doubtful—This relationship has often been interpreted as implying an equilibrium between calcium ions, phosphate ions, and the solid phosphate of bone, so that, if, say, blood P falls, more calcium phosphate from bone dissolves and the concentration of calcium rises. Since so many exceptions to this generalization have been observed, it is doubtful whether any such significance can be attached to it.

Breakdown of Relation—The relation may break down particularly with high calcium levels (especially if caused by the sudden injection of calcium salts) probably because under these circumstances some calcium phosphate tends to accumulate in the blood in a colloidal form which the kidney cannot excrete; this is eventually removed by the cells of the reticulo-epithelial system. Under these conditions high serum calcium is associated with high serum phosphate.

From The Physiology of the Mouth *by G. Neil Jenkins, Ph. D., Blackwell Scientific Publications, Oxford, England, and Charles C Thomas Publisher, Springfield, Illinois,* 1954, *pp.* 18-21.

Effect of Topically Applied

STANNOUS CHLOROFLUORIDE

on the Dental Experience in Children

CHARLES L. HOWELL, D.D.S., M.P.H. and
JOSEPH C. MUHLER, D.D.S., Ph.D., Indianapolis

DIGEST

This article points out that approximately one-half of the population is served by rural water supplies. At the present time one-eighth of the population, or 20 million Americans, drink fluoridated water. It is unlikely that at any time more than 80 million persons will drink from fluoridated communal water supplies. A solution of stannous chlorofluoride to be applied topically is described and the effects of its use are reported.

Statistics

At the present time approximately 20 million Americans drink water with a fluorine concentration of approximately 1 ppm or above. This is nearly one-eighth of the entire population of the United States, but it is probable that at no time will the number ever be more than 50 to 60 per cent of the population.

Reason for Percentage—Approximately one-half of the population is served by rural water supplies that are too small to be safely fluoridized. From a preventive dentistry viewpoint, therefore, other effective methods of fluoride therapy must be instituted that will compare favorably with communal fluoridation.

Rate of Reduction—The topical application of a concentrated solution of sodium fluoride has been introduced for this purpose, and through its judicious use a reduction in dental caries by 30 to 40 per cent in children has been reported, while a reduction of 50 to 60 per cent in new cavities is experienced in six-year-old children whose teeth calcified during the period that they ingested fluoridated water.

Cost of Dental Services—Conservative estimates of the annual backlog of dental services are placed at more than 1 billion units per year, with the cost of dental health care per family in the United States at more than $200 a year. This comprises 15.6 per cent of the nation's entire health bill.

New Agent Tried

In an attempt to find a more beneficial compound for use as a topical agent, stannous chlorofluoride was applied to the erupted teeth of approximately 800 children, ages six to 15 years. One-half of the children were treated with a 1 per cent aqueous unbuffered solution of sodium fluoride, and approximately the same number received a 4 per cent stannous chlorofluoride solution.

Method of Application—Both fluorides were applied to the teeth by cotton applicators in a manner similar to that described by Knutson. This consisted of a thorough dental prophylaxis followed immediately by the first topical fluoride application.

Applications Repeated—Within a period not exceeding ten days three additional topical treatments were given, although only the first was preceded by a prophylaxis. The treatment consisted of keeping all surfaces of the teeth moist throughout each four-minute treatment series.

Fluorine Levels Maintained—One of the authors examined all the children in a mobile dental trailer. Excellent light, compressed air, and new dental explorers and mirrors were used. The concentrations of the fluorides used in this study were chosen so that the fluorine levels would be similar. Since an 8 per cent stannous chlorofluoride solution was considered unpleasant for use by the children, a conventional 2 per cent solution of sodium fluoride could not be used and still maintain equal fluorine concentrations in both solutions. All the solutions were prepared fresh each morning and noon from oxygen-free water.

Reexamination after One Year—Approximately one year after the initial fluoride applications the children were reexamined by the same dentist. At no time did the examiner have any knowledge of which group he was examining or of the previous caries history of the children.

Results of Treatment

Only the children who were examined and treated at both the initial and the 12-month periods were included in computing the data shown in Table I. The analysis was confined to the dental caries experience in the erupted permanent teeth at the time of the first examination. The incidence of new caries in previously noncarious teeth treated with stannous chlorofluoride was reduced by about 85 per cent more than the reduction in the children who received the sodium fluoride treatment. Through the

Table I.

Comparison between topically applied stannous chlorofluoride and sodium fluoride on the dental caries reduction of children.

Group	Number of children	Initial examination: Number of noncarious teeth	Initial examination: Decayed, missing, or filled surfaces	Twelve months later: Newly decayed, missing, or filled teeth*	Twelve months later: Newly decayed, missing, or filled surfaces*	Reduction (per cent): Teeth	Reduction (per cent): Surfaces
NaF	397	5569	1809	245	281		
SnClF	394	5407	1846	32	46	86.9	83.5

**Compared with initial noncarious teeth or surfaces.*

use of this new fluoride, approximately the same degree of protection was obtained on surfaces in teeth that were noncarious at the initial examination.

Comparative Reduction of 90 per cent—The children in the sodium fluoride group had an average increase of 0.708 newly decayed, missing, or filled surfaces, and if this represents a reduction of approximately 40 per cent in new decay, as previously reported by many other workers, then it is reasonable to suppose that a nontreated control group would have had 1.180 newly decayed, missing, or filled surfaces. Therefore, using the average increase in newly decayed, missing, or filled surfaces in the stannous chlorofluoride group (0.117) a reduction of 90 per cent in dental caries is found when compared with children who did not receive fluoride therapy.

Possible Superiority of Agent—These data strongly suggest that this new fluoride is superior to sodium fluoride in preventing new dental caries when used as a topical agent. Through the use of this compound, a greater reduction in dental caries may be expected for the children who do not receive the benefits of fluoridation.

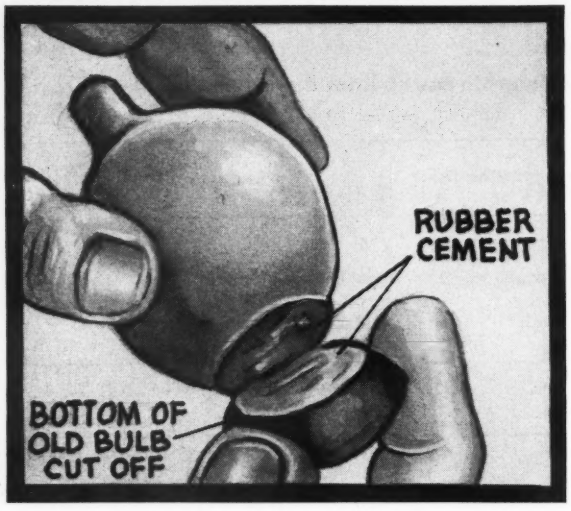
Additional Study Needed—In the study begun in 1951, stannous fluoride was used as a topical agent and children receiving it experienced greater protection than controls given sodium fluoride furnishing twice as much fluorine. This fact, together with the data reported here, suggests that the cation, tin, may influence the effectiveness of the fluorine and that additional studies should be made to find still more effective compounds.

Adapted from Science **120**:316-317 (*August*) 1954.

Local Anesthetic Agents

EACH of a group of 25 patients received an intraoral injection into one or more mucobuccal fold areas of one or more of the following local anesthetic agents: cyclaine,® 2-chloroprocaine,® bonocaine A,® oracaine,® (newly developed anesthetic agents) as well as xylocaine® and/or saline (control agents). No evidence of deleterious gross or microscopic tissue changes of significance was noted in the areas injected with these experimental anesthetics two days after treatment based on comparison with the similar control areas.

From *Current Researches in Anesthesia & Analgesia* **33**:394 (November-December) 1954.



1

Clinical and Laborator

Stabilizing a Chip Blower

S. M. Dooreck, D.D.S., Brooklyn, New York

1. Chip blowers have a tendency to fall from the bracket table because of the rounded bottom. Cut an old chip blower in half and cement the portion to a new bulb to make a more solid base.

2

Matrix Band for Deciduous Molars

Robert C. Stenger, D.D.S., Portland, Oregon

2. A self-retaining metal matrix band for deciduous molars may be made by bending a .002 or .003-steel strip to the form shown in the illustration.

3

To Keep Foot Control From Sliding

W. R. Eberle, D.D.S., Chicago

3. Cut a piece of nonskid webbing such as is used under rugs (Rug-Kling) a little larger than the foot control and place in position.

READERS *are Urged to Collect $10.00*

For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay $10.00 on publication.

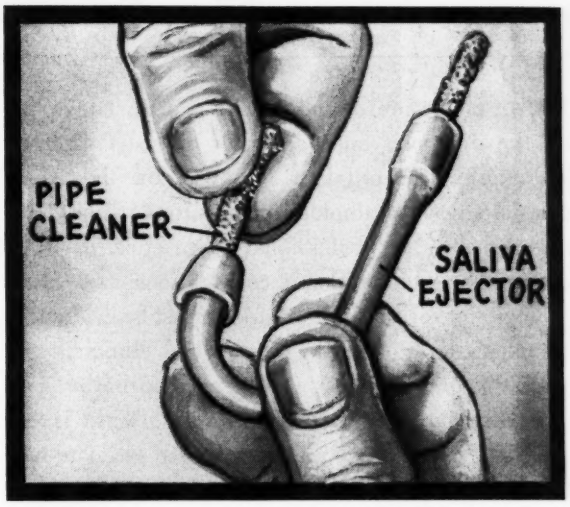
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Cleaning a Saliva Ejector

Dean M. Wilson, D.D.S., Johnstown, Pennsylvania

4. Use a pipe cleaner to clean and scrub a saliva ejector.

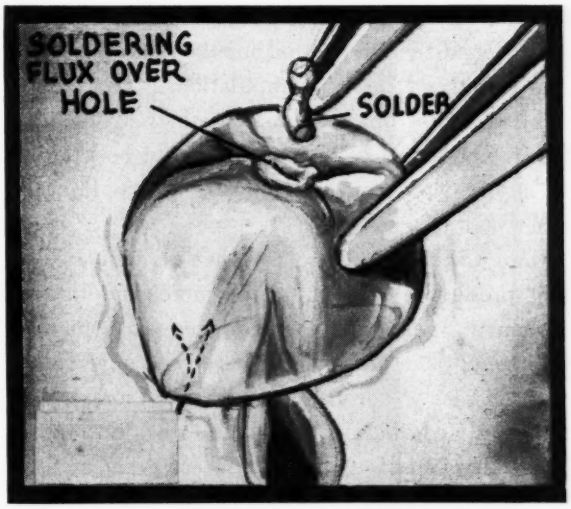


4

Soldering a Hole in a Gold Crown

Erwin C. Lubit, D.D.S., Brooklyn, New York

5. Rub a soft pencil around the inner surface of the hole. Place a little flux over the hole and hold the crown in the Bunsen burner. When the flux is warm it becomes sticky. Then place a piece of low fusing solder in the sticky flux and hold in the flame until the solder flows.

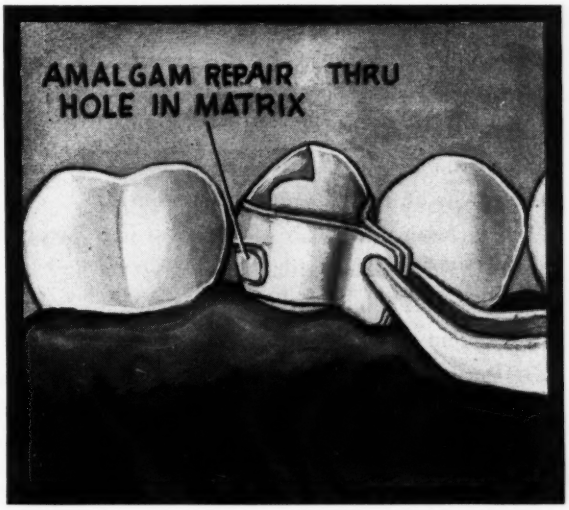


5

Gingival Amalgam Repair

Charles S. Terry, D.D.S., Tacoma, Washington

6. When a cavity develops at the gingival margin of a restoration, prepare the cavity in the usual manner and then adjust a matrix band. Indent the matrix over the cavity preparation with a ball burnisher. Remove the band and cut a hole in it the size and shape of the indentation. Return the band to position and pack the cavity with amalgam.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 88 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S *Page*

IT WOULD be presumptuous for a dentist to write on the diagnosis and treatment of heart disease. To express an opinion, however, on the basic physiology and pathology of any tissue should be no offense to the professional proprieties. Because disease has socio-economic connotations, as well as biologic implications, the subject must be evaluated by others in addition to the medical clinician.

The frightening fact is that the morbidity and mortality rate from cardiovascular disease is increasing, particularly among men. An estimate has been given that fifty percent of males past forty are faced with the prospects of a coronary occlusion. A writer in Medical Clinics of North America expressed the fact: "It seems clear that some factor which is particularly lethal for the male is operating selectively in our population." This lethal quality strikes down dentists in their prime, and the prevention of heart disease should be a factor of important concern to them—as well as to every other man past forty.

Two Canadian physicians have written a book that presents a theory for the increasing rate of coronary artery disease and suggests a method of treatment.[1] The theory is based on the observation that the rate of coronary disease has increased as the supply of vitamin E in the diet has decreased. This vitamin is found in the wheat germ and, as the refinement of cereal grains has improved, the amount of natural vitamin E in the diet has lessened.

The method proposed by the Shutes to prevent coronary artery disease and to improve the physical status of those who have had a coronary episode is to supply vitamin E in the form of alpha tocopherol in relatively large doses.

The rationale for the method is based on these known facts on the nature of this vitamin:

1. The basic function of tocopherol is to protect muscle from disintegration.

2. The well-being of the entire vascular system is dependent upon vitamin E.

3. It possesses antithrombin properties to prevent intravascular clotting.

4. It promotes the activity of the sebaceous gland to help rid the body of excess cholesterol.

Vitamins-enzymes-catalysts-hormones constitute in the body economy an interrelated chain of fundamental primacy. "If the hormones are the internal or endogenous activators of the body the vitamins may be considered the exogenous chemical activators. Enzyme systems are the primary physiologic operators in these mechanisms and many such systems contain vitamins. Since there are some two thousand known enzyme systems and less than twenty known vitamins, it is evident that the same vitamins must participate in many different phases of body activity."

In any discussion of the degenerative diseases, and certainly cardiovascular conditions lead this infamous category, the microchemistry of the tissues must be the point of chief emphasis. What produces fibrous growths in the intima of blood vessels? What causes mural thrombi to develop there? What activates the sclerotic processes in the arterial walls? Unhappily, the complete answers to these questions are lacking. We are secure in saying, however, that people are today doing something harmful to themselves that their grandparents did not practice. That something probably is found, in part, in current nutritional habits that deprive us of essential minerals and vitamins and fill us with excessive calories and cholesterol.

Men, with their thicker lined arteries and unprotected by the vasodilator and vasotonic influence of the female sex hormone, estrogen, are in a particularly sorry way and predisposed to hardening of their arteries and to intravascular clotting.

The Shutes in their book do not proclaim that the fertility vitamin E is the elixir for life eternal. They make a good case for the use of alpha tocopherol in cardiovascular disease. We are not suggesting that dentists practice this form of therapy, or practice self-medication if they are coronary candidates or coronary victims. We are suggesting that physicians set their prejudices aside and do not condemn the Shute procedure in advance of investigation. The human stakes are too high to gamble with such preconceptions.

[1] Shute, W. E., and Shute, E. V.: Alpha Tocopherol (Vitamin E) in Cardiovascular Disease, Toronto, The Ryerson Press, 1954.

MEDICINE and the Biologic Sciences

Circulatory Effects of Cigaret Smoke

In approximately four out of five persons who smoke, the nicotine content of inhaled tobacco smoke affects the peripheral circulation. When a standard cigaret is smoked, from 2.5 to 3 milligrams of nicotine is absorbed from the lungs. Since many persons do not inhale, the lack of change in the peripheral blood volume in some cases may be due to the method of smoking rather than a lack of sensitivity.

Vasoconstriction or vasodilatation occurs within eight to ten minutes after the start of smoking. Smoking more than one cigaret rarely produces further effects.

In one series of tests on persons with presumably normal circulation, 79 per cent were sensitive to cigaret smoke. When the mineral type of filtered cigaret was used, one out of three persons showed no response to the smoke.

Apparently women are more sensitive to nicotine and other tobacco products than men. The greatest degree of alteration in blood volume in sensitive men averages 19 per cent, whereas, in women who respond, the degree of alteration is approximately 33 per cent. When a filtered cigaret is smoked, men show a 10.7 per cent change, while women show a change of 20.5 per cent.

Despite the greater sensitivity of women to smoking, some types of peripheral vascular diseases in which the vasoconstrictor effects of smoking are supposedly a cause, are less common. Although Buerger's disease is rare in women, for instance, Raynaud's disease and other labile vascular diseases are more common in women. The presumption is that women have less stable or more responsive peripheral vascular systems than men.

Many of the older patients show no change. It would seem, therefore, that persons over 40 can probably smoke without evident immediate alterative effects of peripheral circulation.

Friedell, Morris T.: Effects of Cigarette Smoke on the Peripheral Vascular System, JAMA **152**:897-900 (*June* 14) 1953.

Bacterial Resistance To Antibiotics

Indiscriminate use of the antibiotics tends to increase the resistance of organisms to the antibiotics. Whenever possible, laboratory tests should be made to determine the causative organisms of a particular infection and the sensitivity of those organisms to available antibiotics. With this knowledge it is possible to employ the most potent antibiotic or combination of antibiotics in therapy.

Without laboratory help, no clinician, however experienced, can tell when bacteria are going to succumb to treatment with any of the antibiotics. Often an organism that is susceptible at the beginning of treatment becomes resistant later.

Bacterial resistance to antibiotics after exposure to the drugs can be demonstrated with every antibiotic and every bacterial species yet studied. The more any antibiotic is used, the more readily do bacteria of all types develop resistance. The progeny of these bacteria, propagating that resistance, fail to respond to treatment with the antibiotic.

The development of this phenomenon can be largely attributed to the following factors: (1) inadequate dosage, (2) empirical application, and (3) general misuse of antibiotics. With penicillin in particular, great harm is done by those who prescribe single injections for nonspecific infections. Furthermore, building up a resistance to one broad-spectrum antibiotic will develop resistance to another, especially in the case of aureomycin and terramycin.

The medicated disc method of determining sensitivity is preferred because of (1) simplicity, (2) rapidity and (3) consistency. By this method either the exudate or a small amount of broth in which the specimen is suspended, is smeared evenly over the surface of a blood agar plate. Discs saturated with an antibiotic are then placed on the surface of the agar. At least four or five or as many as nine different substances may be tested against the culture. After overnight incubation, some qualitative indication of the sensitivity of the organism is evident from the widths of the zones of growth inhibition.

The drug to which the culture is most susceptible is the one used for treatment of the patient. If the culture contains a mixture of organisms, as will often happen with a surgical infection, two antibiotics may be needed. If the culture is resistant to the above antibiotics, secondary tests are done with aureomycin, chloromycetin, polymyxin and erythromycin. If the culture is resistant to these drugs also, the inhibiting concentration for each may be determined by dilutions from 100 to 250 units or micrograms downward in fluid media.

Frequently synergism is demonstrated between two or more antibiotics. In this case, fractions of the smallest inhibiting concentration when combined will inhibit the growth of the organism. Commercially prepared discs are available for small

hospital laboratories where tests are infrequent. In large hospitals the practice of making up the antibiotic dilutions at the hospital is more economical and satisfactory.

Meleney, Frank L., and Johnson, Balbina A.: The Clinical Significance of the Increasing Resistance of Organisms to the Antibiotics, Surg. Gynec. Obstet. **97**:267-276 (*June*) 1953.

Impotence in Diabetes

One of the most common symptoms noted in men with diabetes is impotence. Some state, however, that 53 per cent of diabetic men are impotent. In a few cases there is an increased sexual desire.

Impotence may be a premonitory symptom, but in such cases the actual date of onset of the disease is often problematical, because such early symptomatology applies to the middle aged rather than to the young patient. It is not always the consequence of exhaustion or loss of sugar in the urine, since it occurs in well-nourished diabetic patients with little excretion of sugar. Yet in only moderately severe cases, sexual capability returns when glycosuria disappears or decreases. This is exceptional in severe cases.

The mechanism of impotence in diabetes could be due to (1) pathologic changes in the sexual glands, (2) alteration of the secretion of the pituitary gland, or (3) dysfunction of one or the other on account of the diabetic state. Occasionally impotence accompanies the onset of diabetes. And usually there is no obvious disease or deformity in the genital tract. The condition appears to be functional rather than organic. It does not appear to have a neurotic origin because it is usually a permanent condition, whereas, with diabetic neuritis improvement is almost invariable.

Psychic factors, such as anxiety and fear of the future with respect to vision, arteriosclerosis, and gangrene have special importance to diabetic patients. (1) Anxiety, (2) nerve tension, and (3) depression are well-known factors for impotence among non-diabetic patients. They do not, however, seem adequate to explain the impotence seen with such frequency in young diabetic patients.

The prognosis for relief of the impotence is dubious. Some instances of recovery even after many years do occur. Whether these are due to psychiatric or medical therapy is uncertain. Treatment is unsatisfactory but testosterone in 25-milligram doses injected twice weekly, has occasionally produced surprising results. This is especially true with hemochromatosis in which atrophy of the testicles is noted, together with marked diminution in the size of the prostate. The question remains, however, as to whether the improvement is due to improvement of the general physical condition or to actual relief of the impotence.

The effect of impotence on the patient psychologically far, far outweighs the physical harm. Failure to recognize the possibility of impotence and its later development undoubtedly wrecks many marriages. A man will put up with the illness of his wife "for better or worse," but a woman is not inclined to disregard impotence when it develops in her husband, even though there have been children and middle life has been reached.

Queries and Minor Notes: Impotence in Diabetics, JAMA **153**:1066-1067 (*November* 14) 1953.

Cervical Arthritis

Alterations in the cervical spine can account for headache, neck pain, and brachialgia. Dentists are particularly vulnerable because these alterations in the cervical spine may be caused or aggravated by the abnormal positions assumed while standing at the dental chair. This is especially true of the older men who are not accustomed to using the operating stool.

The chief symptom of cervical arthritis is an aching pain in one or both shoulder regions. The sensation often extends into the supraspinatus region or laterally over the shoulder to the deltoid insertion.

The physical examination is of utmost importance, since the differentiation can be made between pain originating in the cervical spine and that starting in the shoulder region. Normally, flexion of the neck is free, permitting the chin to touch the suprasternal notch. Right and left rotational motions should allow the point of the chin to reach almost to the lateral tip of the clavicle without hunching of the shoulder.

Rotation in the cervical spine should reach 90 degrees. A gradual lessening occurs with age, but anything less than 45 degrees in the older person is definitely abnormal. Right and left bending are measured by the deviational angle of the vertex of the skull from the sagittal plane of the body and should measure 45 degrees on either side.

Hypertrophic arthritis of the cervical spine develops as a result of wear and tear usually associated with aging. It is aggravated by repeated functional trauma. The two principal places affected are: (1) the intervertebral discs, and (2) the apophyseal or facet joints of the cervical spine. Disc degeneration ordinarily occurs with age. Marginal osteophytes of the upper and lower vertebral borders, with or without projection into the intervertebral foramina, seen on an oblique radiographic view of the cervical spine, are indicative of gradual disc degeneration.

When cervical arthritis is suspected, a complete radiographic examination should include the routine anteroposterior views, a lateral view in flexion and extension and bilateral oblique films to show irregularity of the intervertebral foramina, facet arthritis and fractures of the articular processes.

Conservative therapy is effective in most cases of cervical arthritis and disc degeneration. In acute stages, the application of halter traction gives dramatic relief by stretching the spastic muscles and widening the intervertebral foramina, where pressure is exerted on the spinal nerves. The head end of the bed is raised so that

Who wants wide interproximal spaces where they serve no purpose ?

Designed specifically as BRIDGE TEETH, Steele's New Hue teeth *minimize* the interproximal space.

And equally as important as their improved anatomy, are their *functional* character markings — which when wet become tiny, light-reflecting *facets,* giving the tooth a true life-like *sparkle.*

Steele's New Hue facings and Trupontics are the *modern* teeth for all restorations of metal.

Steele's INTERCHANGEABLE TEETH

IN NEW HUE SHADES

The Columbus Dental Manufacturing Company • Columbus 6, Ohio

the patient's body furnishes the countertraction. The traction must be continuous to overcome muscle spasm.

Local infiltration of 1 per cent procaine into tender spastic muscular areas is also desirable in the early stages. Heat and massage are useful in the acute and subacute stages.

In subacute and chronic stages, passive stretching of the cervical spine is important to give rotation and hyperextension movement. Patients should be taught to contract the erector nuchae muscles in order to elongate the cervical spine and widen the intervetebral foramina. Operative therapy is indicated for selected cases only after a vigorous trial of conservative management.

Stein, Irvin; Beller, Martin L.; and Stein, Raymond O.: Cervical Arthritis, J. Albert Einstein M. Center 1:128-134 *(July)* 1953.

Oral Prosthesis as an Important Health Service

CLYDE H. SCHUYLER, D.D.S.,
New York

Importance of Good Prosthesis

It is stated in "The Study of the Dental Needs" made by the Economics Committee of the American Dental Association in 1940 that approximately 25 per cent of the people have partial dentures and 45 per cent have full dentures at the age of 50 years.

Selection of Food—A good prosthesis enables one to select and properly masticate the food essential to maintain good health. An impaired or poorly functioning oral mechanism influences both the quality and the quantity of food consumed. It causes selection of foods requiring little chewing, often leading to excessive consumption of carbohydrates with little or no essential vitamin content.

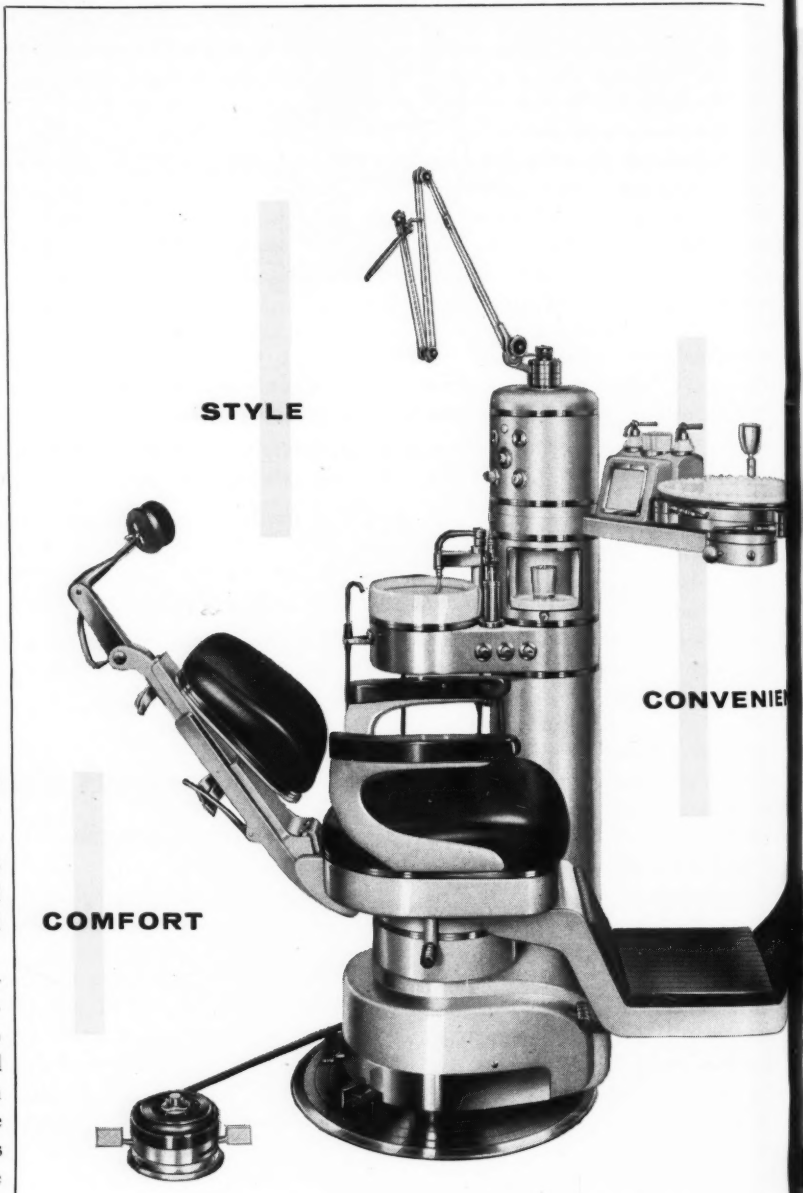
Evidence of Dietary Deficiences—Either a fat or an emaciated person may suffer from protein deficiency and may show improvement when the normal intake of essential protein food is made possible.

Gastrointestinal Disturbances—Improper choice and mastication of food may lead to gastrointestinal disturbances. Medical authorities inform us that indigestion is the complaint of one-half the patients between the ages of 30 and 60 years.

Contributing Factors in Emotion and Physical Health

Pleasing esthetics of a dental prosthesis which is complimentary to facial expression elevates morale and stimulates interest in living. An unhappy person is not a well person.

Effects of Physical Discomfort—One of the most serious contributing factors to ill health, and one which is receiving negligible consideration, is the effect of continued oral discomfort on the general nervous system



contributing indirectly to organic dysfunction. The physical and mental fatigue and nervous reactions resulting from oral discomfort may seriously impair the function of the heart, gastrointestinal tract, kidneys, or any other organ of the body.

Efficiency Reduced—Impaired oral function and oral discomfort reduce vitality and mental astuteness; occupation efficiency and employability are proportionately impaired.

Oral Restoration Required—Many receiving medical treatment can never be restored to health and normal living until they have been relieved of oral discomfort; oral physiology must be restored by a sympathetic and competent dentist.

Oral Considerations in General Diagnosis—Few physicians in their diagnosis and plan of treatment give due consideration to the patient's oral health, oral comfort, and oral efficiency. Often systemic disease will be reflected in the oral tissues and is responsible for impaired oral health and oral function.

accessories at hand
in all operating positions
Engine arm or air syringe! Tumbler, burner or x-ray illuminator! No matter what your treatment calls for, the S. S. White Master Unit D-2 practically hands it to you. A fifth (overdrive) motor speed for carbide burs, diamond instruments, etc. Accessory table arm with electric receptacle for pulp tester. Assistant call button conveniently at reach. Removable column cover. Let your dealer show you how S. S. White equipment can save your energy and build your practice.
E S. S. WHITE DENTAL MFG. CO.
ADELPHIA 5, PENNSYLVANIA

Joint Responsibility

The health and welfare of the patient are the objectives and joint responsibility of both the dentist and the physician. The dentist is not meeting his responsibility to his patient if he disregards the influence of oral anomalies upon the systemic health and oral manifestations of systemic illness. The physician who disregards mouth health, comfort, and functional efficiency in his diagnostic services to his patient is not fulfilling his responsibility in protecting and maintaining the maximum health standards of his patients.

Time and Effort Required—No other branch of dentistry or of the health services requires a more concentrated effort over a greater period of time to acquire an understanding of the arts and sciences, and to develop judgment and manual dexterity, than does prosthodontics. Yet the time devoted to its teaching in the dental school curriculum has been greatly reduced in the past score of years as so-called "more important basic sciences" have been added to the teaching programs.

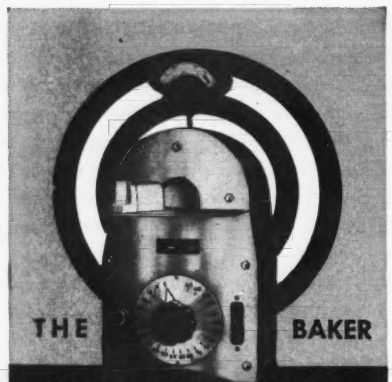
Conditions Prevalent—With 70 per cent of the people over 50 years of age dependent upon a dental prosthesis to maintain health, happiness and employability, it is probable that today more people are suffering ill health due to a deficiency of dental prosthetic services than from oral foci of infection and its associated diseases.

While deficient oral health, oral function, oral discomfort and associated factors do not possess dramatic appeal, as do diseases of heart, arthritis, and many other debilitating diseases, these conditions are much more prevalent and are more serious than common knowledge would suggest.

Three-fold Need

A better understanding by the public of dentistry's needs for philanthropic funds would make it possible for more and far better dental institutions to meet a three-fold need:

(1) The promotion of badly



THE BAKER

PORCELAIN FURNACE

Is Entirely Different In Every Way

Here are the features:

Its modern design, extra heavy rhodium-platinum resistance winding, special insulation, variable transformer, automatic circuit breaker, and accurate pyrometer and thermocouple enables you to safely raise and control the heat as desired up to 2500° F.

Extra large muffle 1¾" x 2½" x 1⅜" with a much larger area of uniform heat. (See graph below.)

Users report exceptionally long muffle life. Burned-out muffles are exchanged by us at a low set price, and are replaced by you in two minutes.

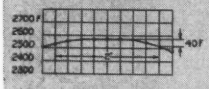
The floor of the muffle is at convenient eye level.

If you bake porcelain, you should investigate this Baker furnace.

Operates on 110 volts A.C. current, $320 complete.

BAKER

THE WORLD'S LARGEST WORKERS AND REFINERS OF PRECIOUS METALS



BAKER & CO., INC.

850 PASSAIC AVE. • E. NEWARK, N. J.

USE!

1955

HELP CRIPPLED CHILDREN

EASTER SEALS

THE NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.
11 S. LASALLE STREET, CHICAGO 3, ILL.

needed research and the development of research workers in the field of denture prosthetics.

(2) Improved facilities for undergraduate and postgraduate teaching.

(3) Increased clinical facilities where the prosthetic needs of low income groups can be satisfied at a minimum cost.

Adapted from *South Carolina Dental Journal* **12**:11-13 (July) 1954.

Relationship of Dental Cavities to General Health

J. H. MANHOLD and C. E. IZARD, Pensacola, Florida*

General Concept of Health

Application for school, employment, insurance, and even personal communications typically contain an assessment of the state of a person's general health. The condition of health is described in broad terms, such as good, fair, or poor, dependent mainly on the number or severity of bodily disorders a person has. Type or types of disorders leading to this designation are not necessarily considered.

Oral Pathology Neglected—Furthermore, in all such descriptions the oral cavity and its disease are almost always neglected. This may be largely due to the fact that dental disease and its treatment is a highly developed specialty which appears to be peripheral to the rest of medicine.

Dental Disease and Bodily Dysfunction—A person who has numerous dental cavities filled during a year's time is rarely thought to be in "poor" health. Therefore, the possibility of a relationship between dental disease and other bodily dysfunction on this level has never been seriously considered.

Study of Relationship Undertaken—The 8-month cumulative medical histories of a sample of Naval Aviation Cadets were examined. This group comprised a total of 1080 subjects (26 consecutive classes). The name, serial number, complaint, diagnosis, treatment, and disposition of the case were tabulated for each man. It was found that five or more dispensary visits were made by approximately 15 per cent of the total population. Assuming frequency of medical complaints as a health index, these 178 subjects could be assumed to represent the "poorest" on a general health evaluation.

Dental Rating is Made from Records—The complete dental records, including roentgenographs, of this criterion group were then collected where possible. DMF (carious, missing, or restored teeth) ratings were made from these records. The DMF rating represents a subject's total past

Table 1. Comparison of DMF score for criterion group and unselected sample.

Group	N	$\bar{x}$	s	t	P
Criterion group	121	31.09	14.76	2,597	.01
Unselected group	1019	27.22	15.55		

Others Have Tried BS POLISHERS Why Not You?

Many dentists have sent in the coupon below and found out why BS Polishers are preferred over many others. They can readily understand why this soft, flexible rubber polisher makes a patient feel safe and comfortable, also why it is easy for it to clean and polish every tooth to a lustre brightness. Why don't you find out these facts for yourself? Send the coupon in now!

BS POLISHERS

ARE SMALLER AND MORE CONVENIENT TO USE

Young Dental Mfg. Co.
St. Louis 8, Mo.

Gentlemen:
Without any obligation send us one of your BS POLISHERS—ABSOLUTELY FREE.

NAME .....
ADDRESS .....
CITY .....
STATE .....

and present dental caries experience. It is compiled by scoring 1 point for each surface of a tooth containing caries or a filling and 3 points for each missing tooth. The resultant mean DMF score of the criterion group was then compared with the mean Naval Aviation Cadet DMF rating formerly established.

Statistics Presented—Of the 178 subjects in the criterion group, complete dental records were found on 121. The other 57 records were unavailable because the cadets had dropped from the program. Table 1 presents the sample statistics for the criterion group and for a large sample representative of the over-all population of Naval Aviation Cadets.

Unselected Group: As may be seen, the mean DMF established on an independent sample of 1019 unselected Naval Aviation Cadets is 27.22 with a standard deviation of 15.55.

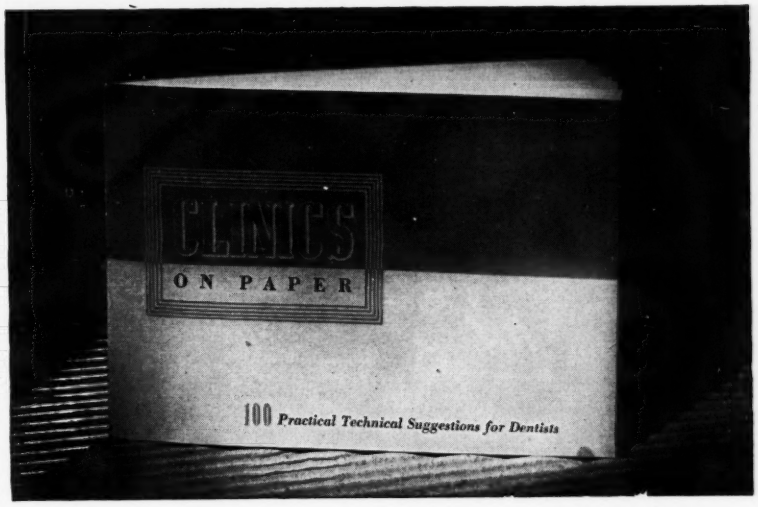
Criterion Group: The mean DMF of the criterion group is 31.09 with a standard deviation of 14.76. The t-test for the difference between these means yielded a value of 2.60, which is significant at the .01 level of confidence.

Comment—It should be noted that this difference was established on a population that can be considered above average in general health, having been screened by a rigorous physical examination prior to admission.

In recent years, dentistry, as well as other branches of medical science, has postulated that certain chronic illnesses affect dental conditions, and conversely. The present study therefore provides an interesting relevancy. It presents empirical evidence of a relationship between general health, as measured by frequency of medical complaints, and oral disease measured by a decayed, missing, and filled teeth rating. This finding demonstrates that dental caries, as well as other somatic complaints, should be considered in any appraisal that attaches a general term, such as good, fair, or poor to a person's condition of health.

Adapted from Science **120**:892 (*November* 26) 1954.

*Naval School of Aviation Medicine.



Indexed By Subjects For Easier Reference

Volume 4 of *Clinics On Paper* was welcome news to many of the 5000 dentists who had purchased each of the three previous volumes. Since its introduction only a few months ago hundreds have purchased Volume 4 to complete their file of this valuable material. *None of its 100 suggestions appeared in the preceding volumes.*

Like each of the three preceding volumes, Volume 4 is printed in two colors on fine paper, *and is indexed by subjects for easier reference.*

The price is only $1.50 per copy to regular subscribers to Dental Digest. To non-subscribers the price is $2.50 (note combination offer in coupon). Why not order your copy now for immediate delivery?

We have a small supply of Volume 3 still available on a first-come, first-served basis. Price information is given in the coupon.

Dental Digest
1005 Liberty Avenue, Pittsburgh 22, Pa.

Please enter my order as marked on the right. I understand immediate delivery will be made.

Dr. .....

Address .....

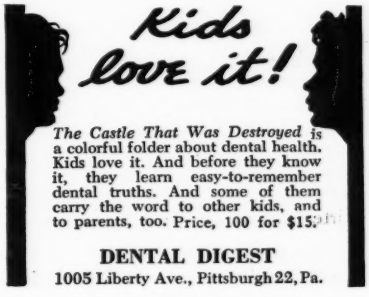
City .....

Dealer .....

☐ Here is $1.50. Send one copy of Volume 4 of Clinics On Paper immediately. I am a subscriber to Dental Digest.

☐ Here is $1.00. Send one copy of Volume 3 of Clinics On Paper. I am a subscriber to Dental Digest.

☐ Here is $6.50. Please enter my order on the basis of 16 issues of Dental Digest and a copy of Volume 4 of Clinics On Paper. I am not a subscriber to Dental Digest now.



The Castle That Was Destroyed is a colorful folder about dental health. Kids love it. And before they know it, they learn easy-to-remember dental truths. And some of them carry the word to other kids, and to parents, too. Price, 100 for $15.

DENTAL DIGEST
1005 Liberty Ave., Pittsburgh 22, Pa.

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 78 *and* 79)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor

DENTAL DIGEST
708 Church Street
Evanston, Illinois

From: _____

_____

Subject: _____

Explanation of Procedure:

Sketch:

Suggestions submitted cannot be acknowledged or returned.

$10 will be paid on publication for each suggestion that is used.

Contra-Angles

Blue Cross, Blue Shield, Blue Dentists

The voluntary hospitals care plans, such as Blue Cross, have grown in overwhelming popularity throughout the country. The medical service programs, such as Blue Shield, have enlisted substantial support. What the subscribers to these plans do not know is that they do not protect them against the costs of hospitalization or the costs of professional care that may grow out of dental infection, disease, or accident—unless a *physician* is in charge of the case. Can you imagine a physician or surgeon extracting an infected and impacted lower third molar or reducing a jaw fracture to ensure proper occlusion? Unfortunately, I can make this dismal mental image as I have seen both attempted—with miserable results, I may add.

Many physicians are jealous of their calling and their craft and arrogant to other workers in the health fields. Their supercilious attitude toward osteopaths is an example. That attitude is now breaking down under public pressure to the degree that osteopaths one day soon may occupy positions on hospital staffs in the august presence of physicians, and medical men may even be permitted to teach in osteopathic colleges without the risk of becoming professional outcasts.

Dentists have not been treated as shabbily as the osteopaths. Dentists are on hospital staffs and in some cases have occupied the position of chief of the entire professional staff. Dozens of physicians teach in dental colleges without endangering their professional standing or prestige and by so doing augment their income. In general, the attitudes and relationships between dentists and physicians

are cordially good. Hundreds of them share offices together and refer patients back and forth without too much ruffling of the feathers of ego.

I do not know who sets the standards for the Blue Cross and Blue Shield programs but whoever does should consider some urgent amendments. In Wisconsin the physicians and surgeons of the state were informed of hospital admissions for dental service by this letter:

"Do hospital admissions for dental work qualify for Blue Cross benefit?

"This is a question Blue Cross gets frequently from doctors. The answer is: *yes* and *no!*

"The contract provision reads as follows: 'Hospital service shall be rendered only upon recommendation and *while under the care and treatment of a physician and surgeon* who is legally qualified and acceptable for practice in the hospital selected.'

"As you can see, it is not enough to have the doctor authorize the admission. *He must be in complete charge and be responsible for the care and the treatment of the patient.* To be completely in charge he must be present at least part of the time while the oral surgery or other dental work is taking place. This is the guiding rule by which Blue Cross approves or rejects dental admissions.

"Admissions for such things as a broken jaw, dental extraction for a cardiac patient or hemophiliac, etc., would qualify if the physician and surgeon admits the patient and is in charge of the case. Admissions, where for all intents and purposes a dentist does the admitting, the work, and is in complete charge of the case, would not qualify.

"We trust this will help clarify this matter. Blue Cross is grateful for your cooperation." Signed, Robert F. Purtell, M.D., *Chairman.*

With proper wrath and forthright vigor the editor of the *Journal of the Wisconsin State Dental Society* (John M. Donovan) responds in these words:

"Thousands upon thousands of dental operations are performed every day in dental offices with the experience and judgment of the dentist only as a guide. If in his judgement he decides to use the facilities of the hospital, it is the height of absurdity that physicians be required to oversee the operation; particularly when the physician will frankly admit that his knowledge of dental work is extremely limited. There is resentment against the labor organizations for trying to protect their particular craft or trade. How different is this?

"Are the medical men trying to protect the public's health or are they trying to make their profession more sacrosanct?"

People who know more than I know about public relations have mentioned in frequent utterances that a soul searching and a psychic catharsis with a dash of humility might be prescribed for most medical groups. Currently the American Medical Association is engaged in conflict with the American Legion on the subject of medical benefits to veterans. Before long we may expect to see another piece of Congressional lobbying by medical men against a compulsory federal insurance system. The popular magazines are filled with

new d-p lamell facings for crown and bridgework are good news for dentistry!

outstanding advantages:

TREMENDOUS STRENGTH—Far exceeding anything in your experience!

GREAT DURABILITY—No chipping, no cracking, no crazing.

INTERCHANGEABILITY—The most practical interchangeable facing made.

ADAPTABILITY—Can be ground and shaped as desired.

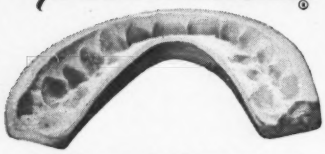
AESTHETIC BEAUTY—Life-like appearance and can easily be characterized.

SIMPLE TECHNIC—Using familiar procedures.

WRITE for FREE Technic Sheet on D-P Lamell Facings, or call your Dental Dealer for full information TODAY.

dental perfection co., inc.
543 WEST ARDEN AVE. • GLENDALE 3, CALIF.

Featherbite
PROTECTIVE MOUTHPIECE ®



THE IMPRESSION IS THE APPLIANCE

FOR TREATMENT AND CONTROL OF **BRUXISM**

FOR CONTACT SPORTS
COMPLETE and INSURED
DENTAL PROTECTION

Many Thousands Worn
Wearer Is Insured up to $250
Against Dental Injury

Remove the Cause Before Removing The Teeth or Rebuilding the Occlusal

- Save yourself time and your patient's Money. No laboratory work required. Simply heat—fit—cool. It's all done in less than 10 minutes.
- Write Today for Technique
- Also Has Other Professional Applications.

ORDER FROM YOUR DENTAL SUPPLY DEALER

Nationally Distributed By **WILLIAMS-HUFF CO.** Bankers Mortgage Bldg. Houston, Texas

—Pat. Pending, Mfd. by Featherlax Corp.

exposes against fee splitting and ghost surgery. All in all, the public relations activities of the medical profession are ailing, if not acutely ill.

When it has suited the convenience of medical politicians they have enlisted the support of dentists to help in the fight against compulsory health insurance. Dentists responded with their time and contributions. When the battle was won or at least the outcome was deferred, the fervent wooing of dentists turned cool and frigid.

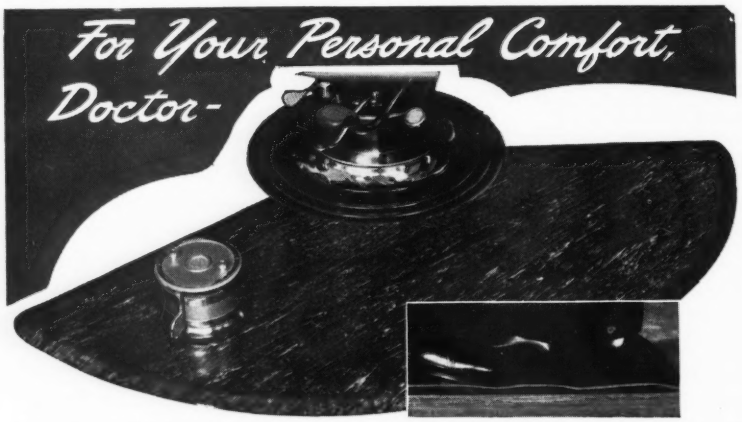
President Eisenhower and the Congress may be expected to seek legislation for some kind of insurance to cover the cost of *catastrophic* illnesses. Millions of people will want this kind of protection which is quite different from a federal system that supplies free treatment for every grunt and pain, every ache and blemish. The old slogans against socialized medicine when applied to insurance against catastrophic illnesses are pretty thin and unconvincing—particularly to families that have seen their life savings spent for medical care. This subject is introduced here to prepare dentists for a bit more of wooing from the medical politicians when the federal reinsurance project comes up in the present session of Congress.

What can be done to change the regulations in Blue Cross and Blue Shield to include the costs of dental treatment performed in hospitals? The first thing is of a kind done by the editor of the *Journal of the Wisconsin State Dental Society*: To expose the subject for examination and debate. Second, is to ask the administrators of these programs to change the regulations that will place dentists in the same position in the voluntary insurance plans that they now occupy in private enterprise and practice; that is, to operate as independent contractors without the support of physicians who are incompetent to pass judgment on dental diagnosis or treatment. If this kind of conciliation is not successful, the next move would be to tell the public how incomplete their coverage is under these insurance contracts.

We are not advocating a bellicose or objectionably aggressive manner by dentists against our medical colleagues. We are suggesting firm forthrightness of the kind that has won for the dental profession in the past 25 years equal status in the military service, advisory positions on State Boards of Health, firm standing in hospitals and clinics, basic biologic training equal to that given in medical colleges. These advances have not come by standing back and asking "pretty please" for favors from our medical friends. They have come from demanding our rights and from fighting for our proper places in the sun.

It is being flamboyant and carrying the argument too far to describe dentists as being "blue" over the discrimination that they receive in the voluntary "blue" hospital and medical service programs. There are actually few demands for these services

(*Continued on page 96*)



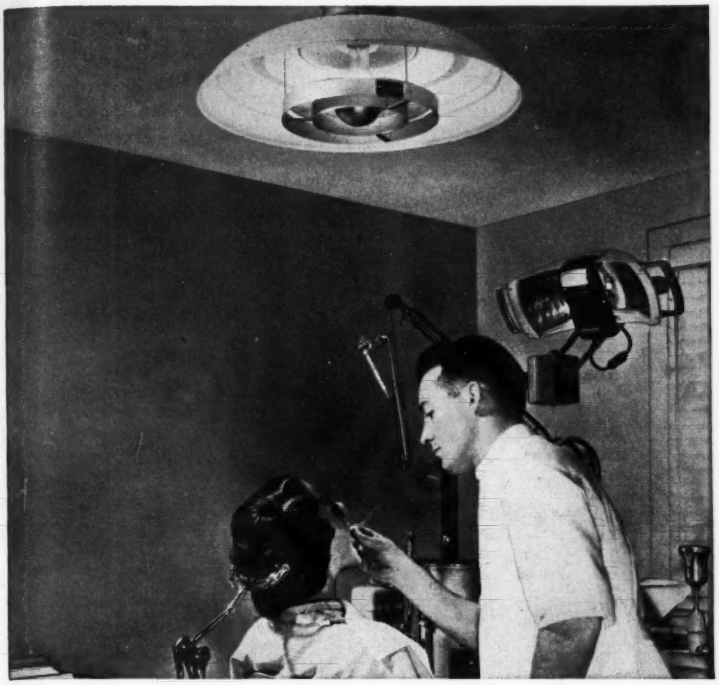
Put a Foot Comfort Cushion by your chair and work in solid comfort!

After a busy day dentists find fatigue considerably lessened when using a Hygienic **Foot Comfort** Cushion.

It has a base of springy, sponge rubber. The cover is a thick layer of marbleized rubber tile which is "lifetime" bonded to the base.

Hygienic **Foot Comfort** Cushions are available in a variety of shapes and colors. Ask your dealer for illustrated literature. DD255

The Hygienic Dental Manufacturing Co., Akron 8, Ohio, U.S.A.



Good vision now . . . good eyes 20 years from now

The problem of eye-strain—and the resulting fatigue—are not new to any dentist.

Your eyes are important to you now, and just as important 20 years from now. Why not give them the best care possible?

These lights—the Castle GV and PV—are a *matched pair* that cut out strong glare, reduce shadows and contrasts. This makes seeing easier and your day's work less tiring.

Directly overhead, General Vision Light illuminates office and work area. Properly balanced with the PANOVISION, the GV Light keeps room contrasts low and lights your work area with soft, restful lighting.

Multi-beam PANOVISION lamp illuminates oral cavity with diffuse, glareless light. Diverging rays from special Castle reflector give proper *intensity* of light, yet keep shadows to a minimum.

Show yourself how much easier it is working with Castle PV and GV Lights. Phone your Castle dealer for a demonstration and free trial . . . or write for free catalog to:

Castle LIGHTS AND STERILIZERS

WILMOT CASTLE CO. • 1123 UNIVERSITY AVE. • ROCHESTER 7, N. Y.

See page 86 D.D.2

YOUNG DENTAL MFG. CO.
ST. LOUIS 8, MO.

Please send sample BS Polisher.

Dr. .....

Address .....

City .....

See page 88 D.D.2

WILLIAMS GOLD REFINING CO., INC.
BUFFALO 14, N.Y.

Please send free information on Williams Golds.

Dr. .....

Address .....

City .....

See page 89 D.D.2

DENTAL PERFECTION CO.
543 WEST ARDEN AVE., GLENDALE 3, CALIF.

Please send information concerning DP Lamell Facings.

Dr. .....

Address .....

City .....

See page 90 D.D.2

WILLIAMS-HUFF CO.
BANKERS MORTGAGE BUILDING,
HOUSTON, TEXAS.

Please send technique on Bruxism.

Dr. .....

Address .....

City .....

See page 90 D.D.2

THE HYGIENE DENTAL MFG. CO.
AKRON 8, OHIO

Please send information concerning the foot comfort cushion.

Dr. .....

Address .....

City .....

See pages 92-3 D.D.2

LAMBERT PHARMACAL CO.
JERSEY CITY, N.J.

Please send samples of Antizyme Toothpaste.

Dr. .....

Address .....

City .....

See page 94 D.D.2

INTERSTATE DENTAL CO., INC.
220 WEST 42ND STREET, NEW YORK 36, N.Y.

Send me one package of Opotow Paste for lower impressions for $4.00.

Dr. .....

Address .....

City .....

Dealer .....

See page 95 D.D.2

WILMOT CASTLE CO.
1123 UNIVERSITY AVE., ROCHESTER 7, N.Y.

Please send information concerning Castle PV and GV Lights.

Dr. .....

Address .....

City .....

See third cover D.D.2

COOK-WAITE LABORATORIES, INC.
1450 BROADWAY, NEW YORK 18, N.Y.

Please send Ravocaine information.

Dr. .....

Address .....

City .....

See fourth cover D.D.2

THE DENTISTS' SUPPLY CO.
YORK, PA.

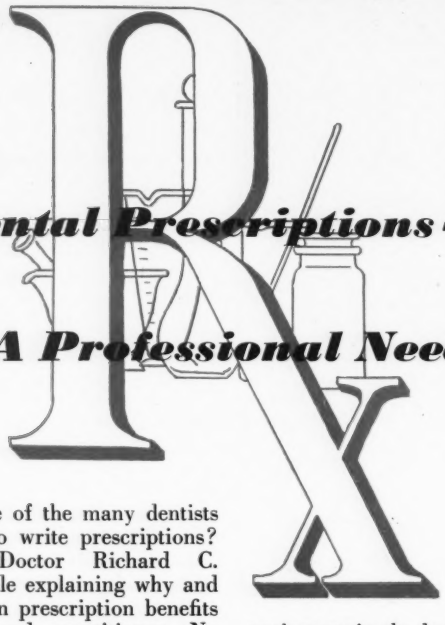
Please send information concerning Bioform Teeth and Trubyte Denture Veneers.

Dr. .....

Address .....

City .....

In your ORAL HYGIENE this month



Dental Prescriptions---

A Professional Need

Are you one of the many dentists who hesitate to write prescriptions? Then read Doctor Richard C. Harriott's article explaining why and how the written prescription benefits both patient and practitioner. No dentist hesitates to dispense sedatives or analgesics or to recommend dietary supplements. Yet he often seems reluctant to *write* instructions for the druggist to follow in supplying these same drugs or pharmaceutical products to the patient. Doctor Harriott says, "When the dentist neglects to prescribe, he is not doing his duty to his patient."

★ ★ ★

Several newspaper and magazine stories have described the manner in which ultrasonics may be adapted to dental use. Some of these reports have been inaccurate and premature. Alden P. Armagnac, Associate Editor of *Popular Science Monthly*, gives dentists an accurate description of the present status of ultrasonic dental devices in the article, "Ultrasonics in Dentistry."

★ ★ ★

The article, "Hypnosis and Suggestion Applied to Practice Management," describes the difference between direct and indirect suggestion and between negative and positive suggestion. "Suggestion," says Doctor Aaron A. Moss, "is the basis of the entire subject of hypnosis," and indirect suggestion is "the basis for forming interpersonal relationships which are the substance of practice management."

★ ★ ★

Have you bought any new office equipment in the last year? Are you planning to buy any during the next year? Harold J. Ashe explains how "Accelerated Depreciation," allowed by the new tax code, may make it possible for you to effect substantial tax savings.

★ ★ ★

"Let's Know Our Patients Better," suggests Doctor Leonard J. Rosen. A dentist must not treat any patient as an "isolated oral cavity," but as a complete personality with thoughts, prejudices, emotions, and problems. The article was written in reply to Doctor A. Randall Ruskin's "My One Big Fee" which appeared in October.

★ ★ ★

"No matter how many years a dentist practices, uncomfortable and unavoidable accidents take place. Sometimes a little extra precaution might avoid an unpleasant incident; sometimes just a little thought of what *can* happen may prevent something from happening." Doctor Irving Goldstein describes some of these "unpleasant incidents" from his own and other dentists' experiences.

★ ★ ★

Doctor Nathan Kobrin speaks up for social security coverage of dentists in the article, "Dollars and Sense of OASI," and cites cases and figures to support his opinion that "OASI is good for all people, dentists included." You won't want to miss this informative article.

(*Continued from page* 90)

and courtesies. With the exception of emergencies, most dentistry is better practiced in the dental office than it is in the hospital. Those cases that require hospital care should be admitted by dentists who have qualified as staff members for the treatment of private practice patients. Every hospital, of course, has the privilege of setting its own standard for its staff. It should be a simple thing to change the Blue Cross and Blue Shield regulations to include emergency dental services performed by the dentist of the hospital staff independent from the supervision of the physician. Private practice patients are admitted and treated on the authorization of the dentist. Voluntary insurance patients should have the same privileges.

—E. J. R.

Advertising Index

Anacin 49

Baker & Co., Inc. 86

Castle Co., Wilmot 95

Columbus Dental Mfg. Co. 83

Cook-Waite Laboratories, Inc. ..... 3rd Cover

Dental Perfection Co. 89

Dentists' Supply Co., The ..... 4th Cover

Hygienic Dental Mfg. Co. 90

Interstate Dental Co., Inc. 94

Laclede Laboratories, Inc. 52

Lambert Pharmacal Co. 92-3

Ney Co., The J.M. 54

Rocky Mountain Metal Products Co. 50

Rystan Co., Inc. 51

Squibb & Sons, E. R., Div. of Mathieson Chemical Co. 53

Universal Dental Co. ..... 2nd Cover

White Dental Mfg. Co., The S. S. 84-5

Williams Gold Refining Co. 88

Williams-Huff Co. 90

Wilmot Castle Co. 95

Young Dental Mfg. Co. 86